Experiencing Mathematics

Textbook for Class III

Education Department
Government of Sikkim

B4Z4W6

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Foreword

Since the development of the primary level state term books in the year 2012 and subsequent revisions, a need to revisit our books was felt to align with the developments that have emerged in the ensuing years. For this, a series of intensive exercises were initiated by SCERT which included consultative engagements with practicing teachers and users of the textbooks; strengthening of a core textbook writing team and collaborating with external academic partners. The revised textbooks of Math, Language and Environmental Studies (EVS) are the successful outcome of these initiatives.

A pilot study of the textbooks was also carried out in 40 government schools from four districts in the academic session of 2019. An orientation of all the teachers was conducted prior to its implementation. Learning experiences from the pilot study was used to further improve the new revised textbooks.

The new textbooks are aligned to the following:

- the Learning Outcomes of the National Council of Educational Research and Training (2017)
- the integration of education for sustainable development (ESD) for the implementation of UN's 2030 agenda for sustainable development goals of education for peace and sustainable development
- the integration of environmental studies in language and mathematics in class I and II with the introduction of the subject of EVS from Class III.

The content of the books is embedded in the socio-cultural context and experiences of the children who come to our government schools. Care has been taken to represent the social, cultural and linguistic diversity of Sikkim. The National Curriculum Framework 2005 emphasizes the need for connecting school learning to the real lives of children and provide a fearless environment where every child feels safe to ask questions, explore and experiment without the fear of being wrong or judged. It is hoped that the schools will nurture this while providing opportunities to work collaboratively with each other.

From the perspective of education for sustainable development, the lessons encourage children to care for and respect the natural environment and people. It encourages children to think critically and creatively about what is happening in their local as well as the global community, connect with their community and to take action for improving it.

SCERT thankfully acknowledges the successful effort of the text book development team of writers, academic partners and reviewers. It also thanks the school heads and officials from Education Department, Govt. of Sikkim for their continuous support.

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It also thanks the team from UNESCO, MGIEP, New Delhi for their contribution in the capacity development of authors for embedment of the concept of peace and sustainable development in textbooks and online support. It owes special thanks to David Richard Wagner, Professor, University of Brunswick, Canada.

SCERT would also like to thank the following for their resources and content: NCERT for their reference materials and documents; UNESCO MGIEP for their publication Textbook for Sustainable Development (www.mgiep.unesco.org) which was used as a key resource for embedding of Sustainable Development.

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It also acknowledges the contribution of Echostream Design Pvt. Ltd. for designing the textbooks and providing suitable illustrations.

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"Empowering society through education"

Note to Teachers and Parents

This textbook is based on the recommendations of National Curriculum Framework (NCF) 2005 and the Learning Outcomes suggested by the NCERT. It is heavily inspired by the NCERT textbook. This textbooks embeds mathematics in the world of the child, inside and beyond the school. It aims to help children engage with mathematics, construct their own knowledge and think mathematically. Topics are introduced with contexts so that children can see the need and benefit of learning something new. Illustrations, dialogs, activities, games, puzzles and stories have been used to engage children in discovering mathematics around them, figuring out rules (rather than prescribing them), finding alternate ways and having fun. The focus is on developing conceptual understanding rather than only drill and practice. The chapters and the teacher pages include examples of suitable manipulatives and materials to help children play with mathematics and have better grasp on this subject. A strong foundation of conceptual understanding in mathematics at primary level will pave the way for future learning.

The textbook provides autonomy to the teachers to design activities and suitable assessment methods and tools. The teacher pages for selected chapters provide suggestions for the same as well as guidance for suitable materials and manipulatives. The teacher pages provide suggested activities that foster conceptual understanding in children.

This new set of textbooks for Classes 1-5 guide children to find and develop mathematics through their experiences. The books focus attention on local culture and environment in Sikkim. They use stories and contexts relating to sustainable development following the United Nations' Sustainable Development Goals (SDGs). When children's understanding of mathematics develops through problems relating to peace, health, hygiene, food security, and other social and environmental concerns, they learn that mathematics is a set of tools developed and used by humans to address their concerns.

Children will develop familiarity with rural and urban life including local plants, animals and human activity) by observing, collecting data, and processing these things mathematically. They will use local games, celebrate special days, notice mathematics done traditionally (e.g., local forms of measurement), and use local materials to extend their understanding of mathematics. They will develop sensitivity to the needs and practices of diverse people in Sikkim (gender, religion, etc.) and honour the dignity of labour through stories of real people who do mathematics. Children will learn to take responsibility in their communities and their environment through dialogue and problem solving.

In most chapters, various mathematical concepts are introduced through contexts. However any real life context, involves multiple mathematical concepts. The theme chapter in this book brings concepts related to a single theme together. So children can see and do a range of mathematics in one context.

The authors of this book would like to express their deep gratitude to Jodo Gyan

(http://jodogyan.org/), Padmapriya Shirali for her Pullouts in At Right Angles (http://azimpremjiuniversity.edu.in/SitePages/resources-at-right-angles.aspx) and Prof. Rohit Dhankar and Digantar. Several aspects of this textbook was also influenced by Maria Montessori and her work.

Class 3: Learning Outcomes

The student will be able to:

1. Identify and make 2D-shapes by paper folding, paper cutting on the dot grid, using straight line, etc.
2. Describe 2D shapes by the number of sides, corners and diagonals. For example: The shape of a book cover has 4 sides, 4 corners and 2 diagonals.
3. Identify objects with line symmetry
4. Understand and read simple maps (not necessarily scaled)
5. Fill a given region leaving no gaps using a tile of a given shape
6. Work with numbers up to 999
    a. Read and write numbers up to 999 using place value
    b. Compare numbers up to 999 using place value
    c. Solve simple daily life problems using addition and subtraction of numbers up to 999 with and without regrouping, sums not exceeding 999
    d. Construct and uses the multiplication facts (tables) of 2, 3, 4, 5 and 10 in daily life situations
    e. Explain the meaning of division facts by equal grouping/sharing and explain the process using repeated subtraction. For example: 12÷3 can be explained as a number of groups of 3 to make 12 and find this number to be 4 by repeatedly subtracting 3 from 12
    f. Analyse and apply an appropriate number operation in a given situation/context
7. Estimate and measure length and distance using standard units such as centimetres or metre and identify relationships between units
8. Weigh objects using standard units – grams and kilograms - using simple balance
9. Add and subtract measures involving grams and kilograms in life situations
10. Compare the capacities of different containers in terms of non - standard units
11. Identify a particular day and date on a calendar
12. Read the time correctly to the hour using a clock/watch
13. Add and subtract small amounts of money with or without regrouping
14. Make rate charts and simple bills
15. Record data using tally marks, represent this pictorially and draw conclusions
16. Extend patterns in either simple shapes or numbers

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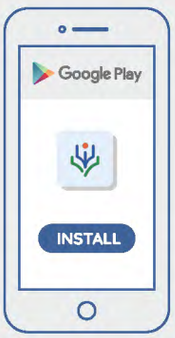

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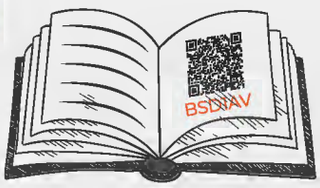
① 

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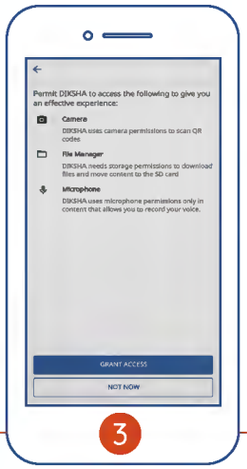

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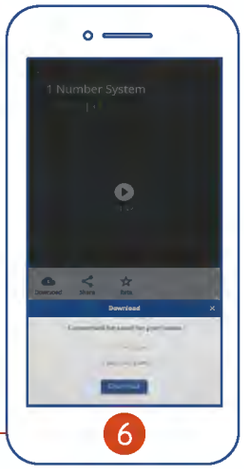

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1. Understanding Shapes

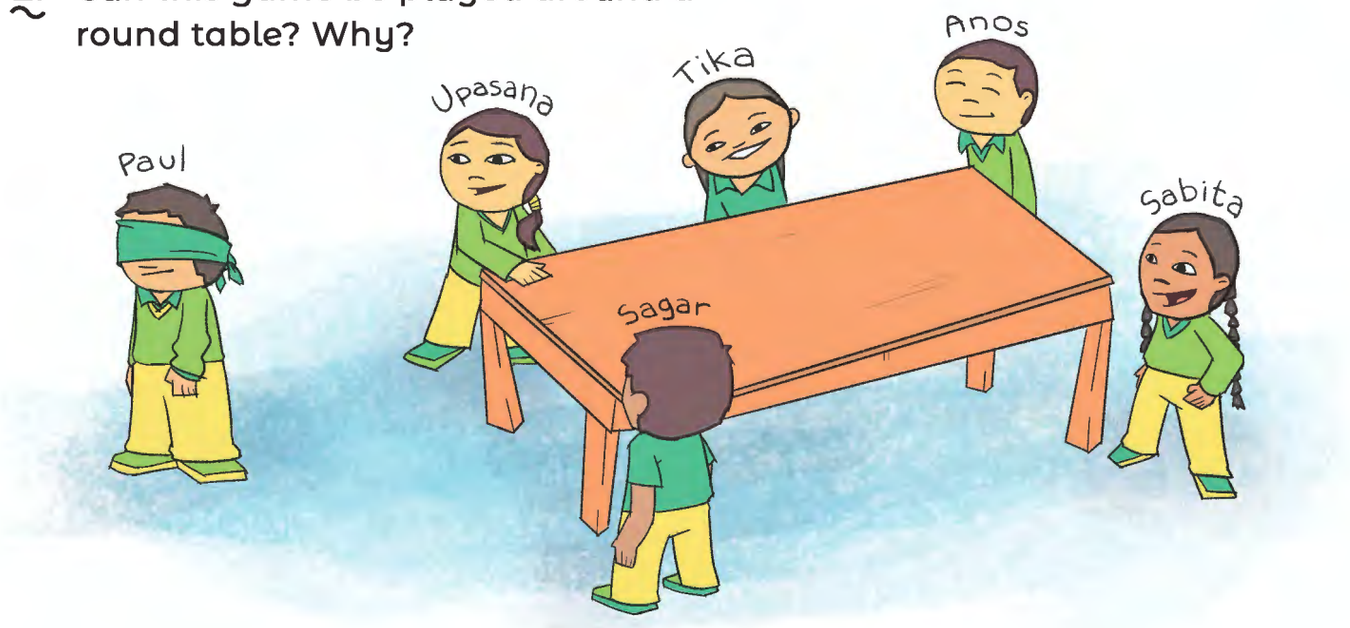
N3P1Z8

Edges and Corners

Upasna and her 5 friends were playing a game. Paul was blindfolded and was asked to keep clapping as long as he wished while the others would move round a table. The moment Paul stopped clapping, everybody would stop wherever they were. The child who was not at a corner would be out of the game. She or he would then be blindfolded next.

1. **Looking at the picture given below, can you tell who is out?**

2. **Can this game be played around a round table? Why?**



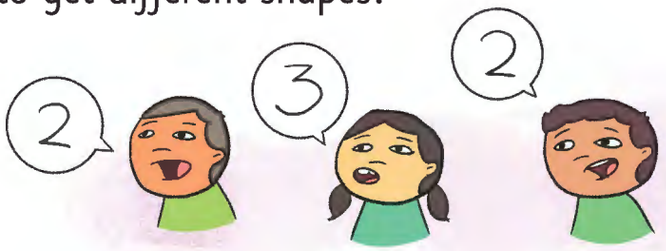
Here in the picture Upasna and Sabita are standing at the opposite corners whereas Sabita is standing adjacent (next) to Anos and Sagar.

a. **Who is standing opposite to Anos?**

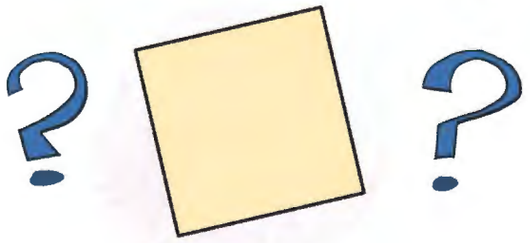
b. **Who all are standing adjacent to Sagar?**

Let us all try to find the corners by ourselves through paper folding.

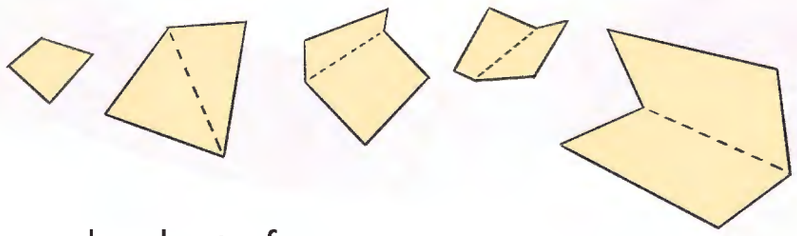
In how many ways can you fold a square paper to get different shapes?

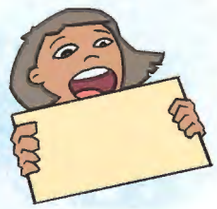


Are there more ways?



What shapes did you all get after folding the paper?





Take a rectangular sheet of paper.

1. Now fold one of its corners.
   How many corners does it have now? _____

2. How many corners will you get by folding-

   a. 2 corners? _____ b. 3 corners? _____ c. 4 corners? _____

Teacher's Note: It is expected that children come up with shapes like triangle, rectangle, square or also may be shapes having 5 or six corners.

Let us take a square sheet of paper.

1. Can you fold this paper in such a way that it has only three corners? What shape did you get? _____

2. Can you fold all the corners of the square sheet in such a way that-

   a. The number of corners remains unchanged? _____

   b. The number of corners increases? _____

   c. The number of corners decreases? _____

Activity:

Take a square, a rectangular, a triangular and a circular sheet of paper.

1. How many corners does each one have? How many edges do they have?

_____ Corners

_____ Edges

_____ Corners

_____ Edges

_____ Corners

_____ Edges

_____ Corners

_____ Edges

Teacher's Note: See that the students come up with the idea of edges and corners. Some more questions may be asked to ensure the response in terms of edges and corners.

2.

How are they different?	How are they alike?
a. A circle and a triangle b. A triangle and a square c. A rectangle and a circle	a. A rectangle and a square b. A triangle and a rectangle

Hint: Which type of lines are their edges?

Diagonals

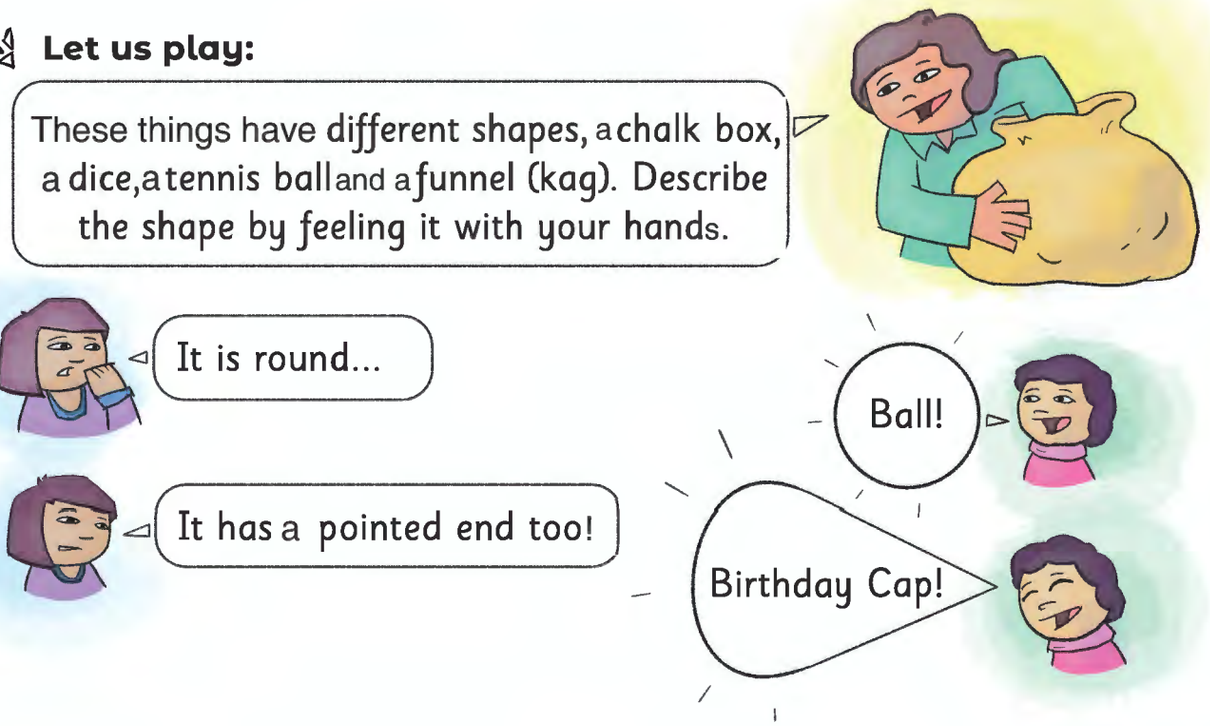
Take a rectangular or a square sheet of paper and draw lines connecting the opposite corners.

1. How many such lines can you draw?

2. Is it possible to draw such lines in a triangle?

The lines that you drew on the rectangle and square are called diagonals. So, the square and the rectangle have _____ diagonals each.

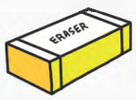
Let us play:



Activity:

Take different objects like duster, dice, chalk box, bangle, soup bowl, coin and eraser.
Now trace along the base of these objects.

1. Let us fill up the table:

Object	Does it have corners?	Number of edges	Number of corners	Shapes after tracing	Number of edges for shapes	Number of corners for shapes
	Yes	12	8	square	4	4
						
						
						
						
						
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Teacher's Note: Initiate the discussion regarding the different numbers of edges and corners that are there for different solids.

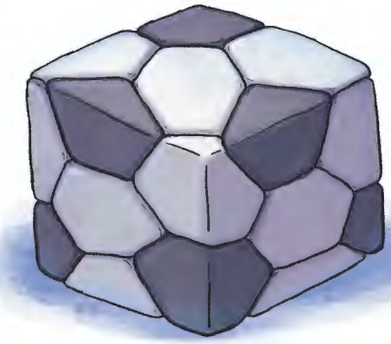
Let us name these shapes

		
sphere	cone	cube
		
cuboid	sphere	cylinder
		
		

Teacher's Note: List 3D shapes from the surrounding and ask children to categorise them under cuboid, cone, sphere, cube and cylinder. Similarly look for 2D shapes around and ask children to identify them as circle, triangle, square and rectangle.

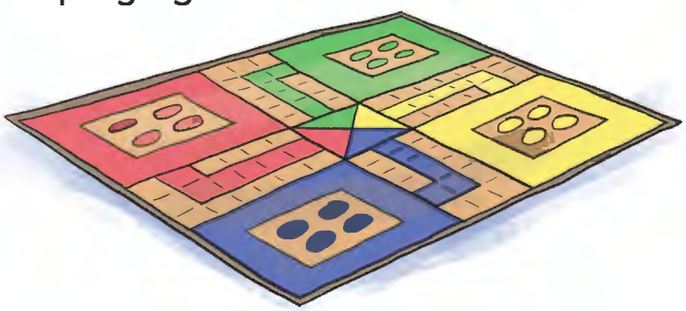
Let us think

1. What would happen if your football was a big cube?



2. What is the shape of the wheel of a car? Can we have triangular wheels? Why?

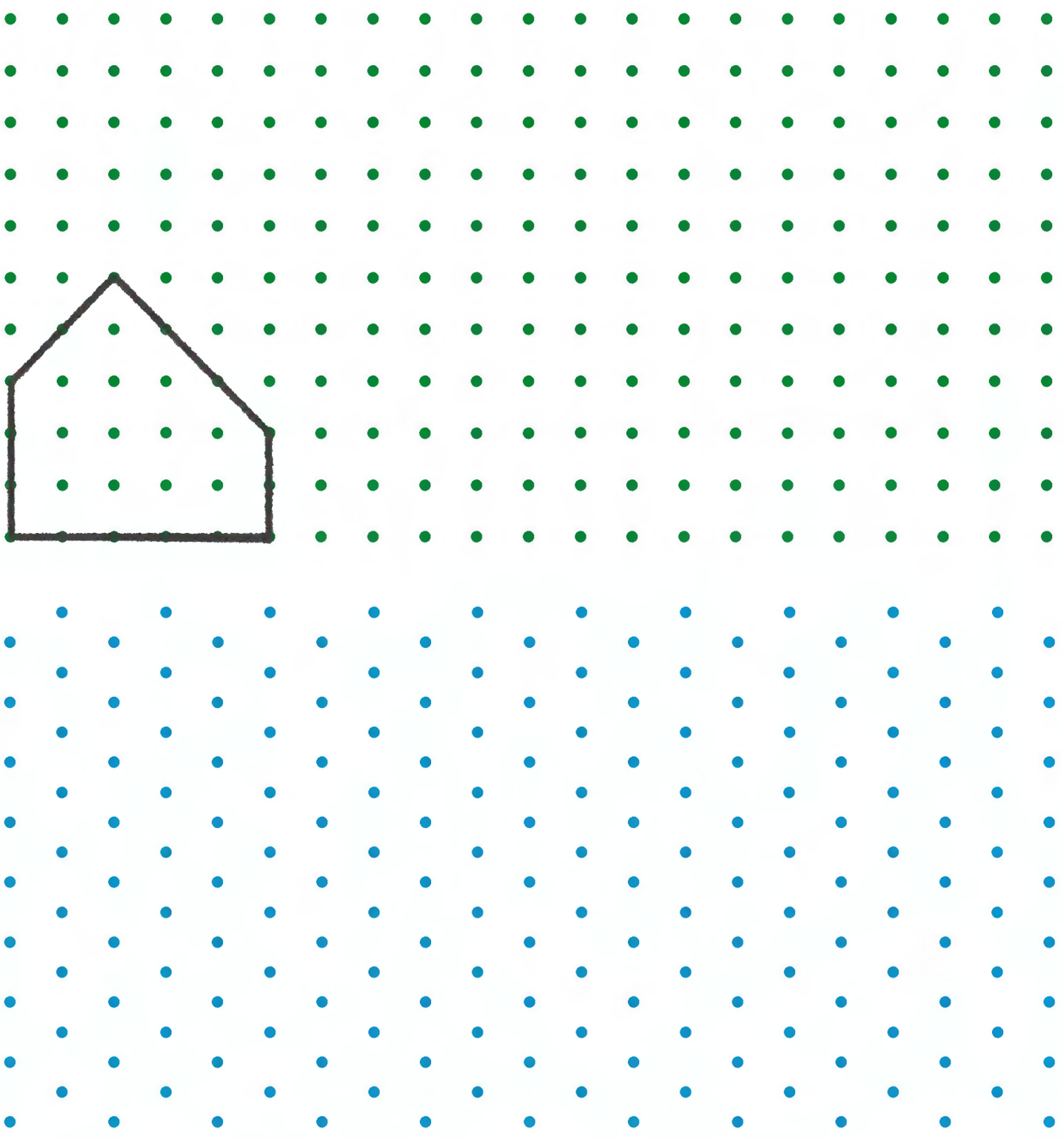
3. What would happen if a marble (tol) is used instead of a dice while playing Ludo?



4. Can maney be turned if they are cuboids?

Shapes on the dot-grid

1. Let us try to draw different shapes on the dot-grid as mentioned below and also count the number of edges, corners and diagonals for each shape.



2. Can you draw shapes that will have

a. 5 corners? b. 6 corners? c. 7 corners?

Do you all remember the curve lines that we have studied in our previous class?

Yes teacher.

Let us draw curve lines on the dot grid.

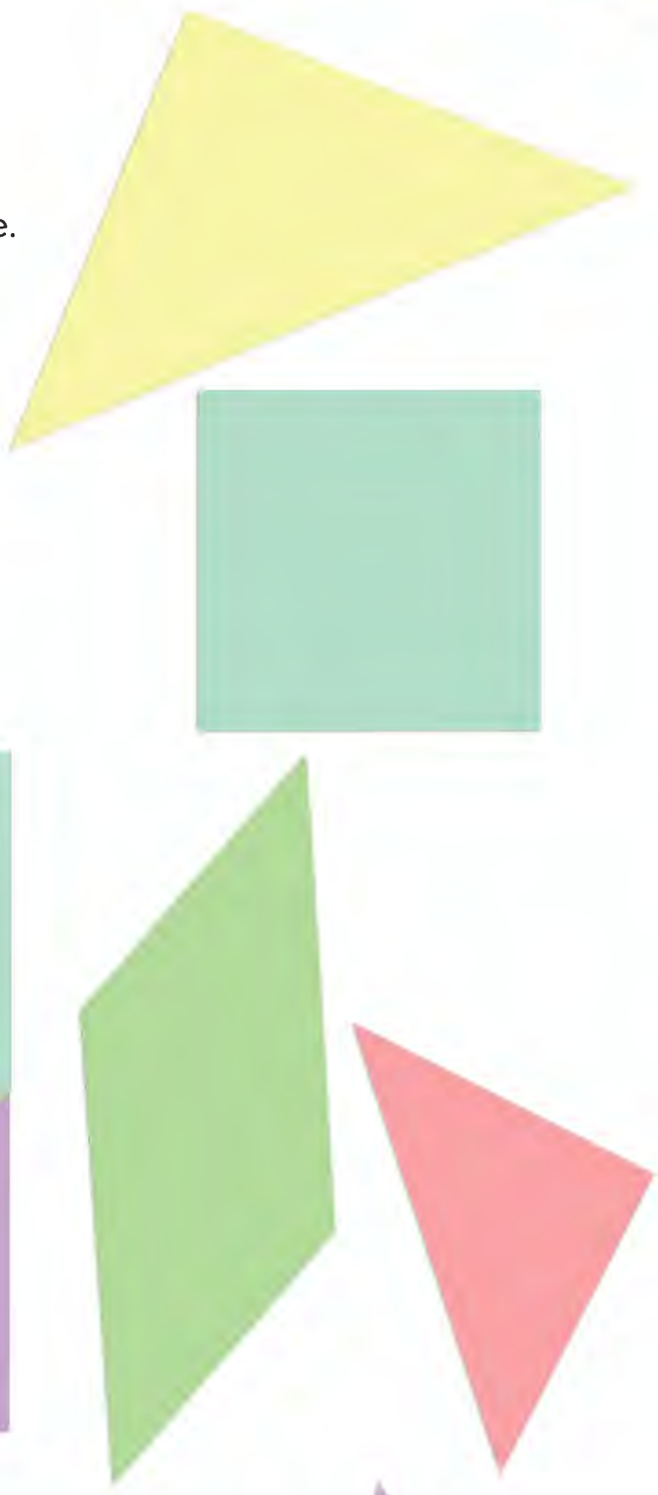
Tangram

The tangram is an old Chinese puzzle. From the pieces of the tangram, we can make many shapes of animals, people and things.

At the end of this textbook, you will find a set of tangram. Cut out each piece carefully.

This set of five pieces is called the 5-piece tangram.

Use these five pieces to make different figures.



1. How many triangles do you have in your set? Are all of them equal in size?

2. Which two pieces of the tangram set are exactly same in terms of their shape and size?

3. Can you make other shapes with these two?

The 7–piece tangram

Here is the picture of a 7–piece tangram.

At the end of this textbook, you will find a set of tangram. Cut out each piece carefully. Put them together in different ways to make some shapes like triangle, rectangle and square.

You can use all or some of the pieces.

1. Count the number of edges and corners of shapes that you make and complete the table below:

Shapes	Number of edges	Number of corners
Shape 1 	5	5
Shape 2		
Shape 3		
Shape 4		
Shape 5		

2. Are the number of corners and edges of the shapes that you have made equal or different?

3. Can you also create a shape that will have more than 4 corners?

Try these

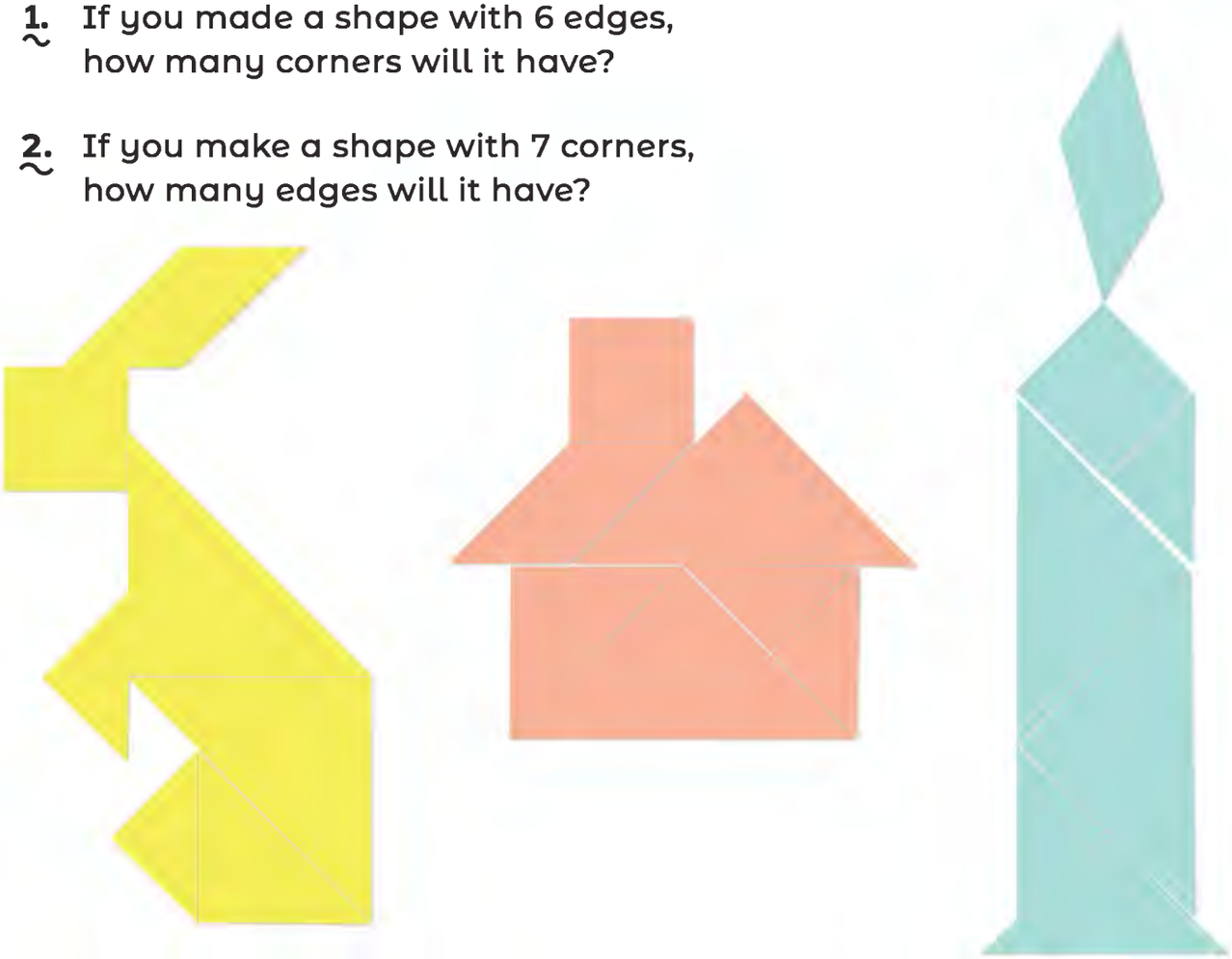
1. Make a shape with 5 corners. How many edges does it have?

2. Make a shape with 8 edges. How many corners does it have?

Let us think

1. If you made a shape with 6 edges, how many corners will it have?

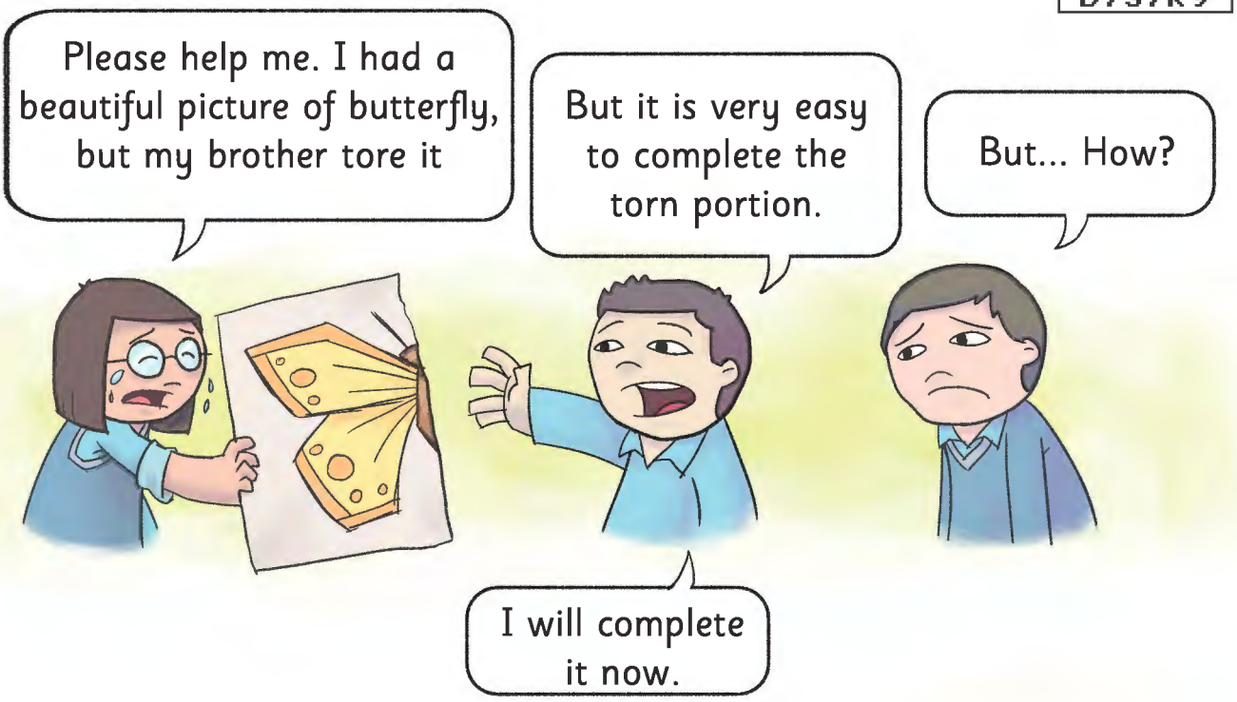
2. If you make a shape with 7 corners, how many edges will it have?



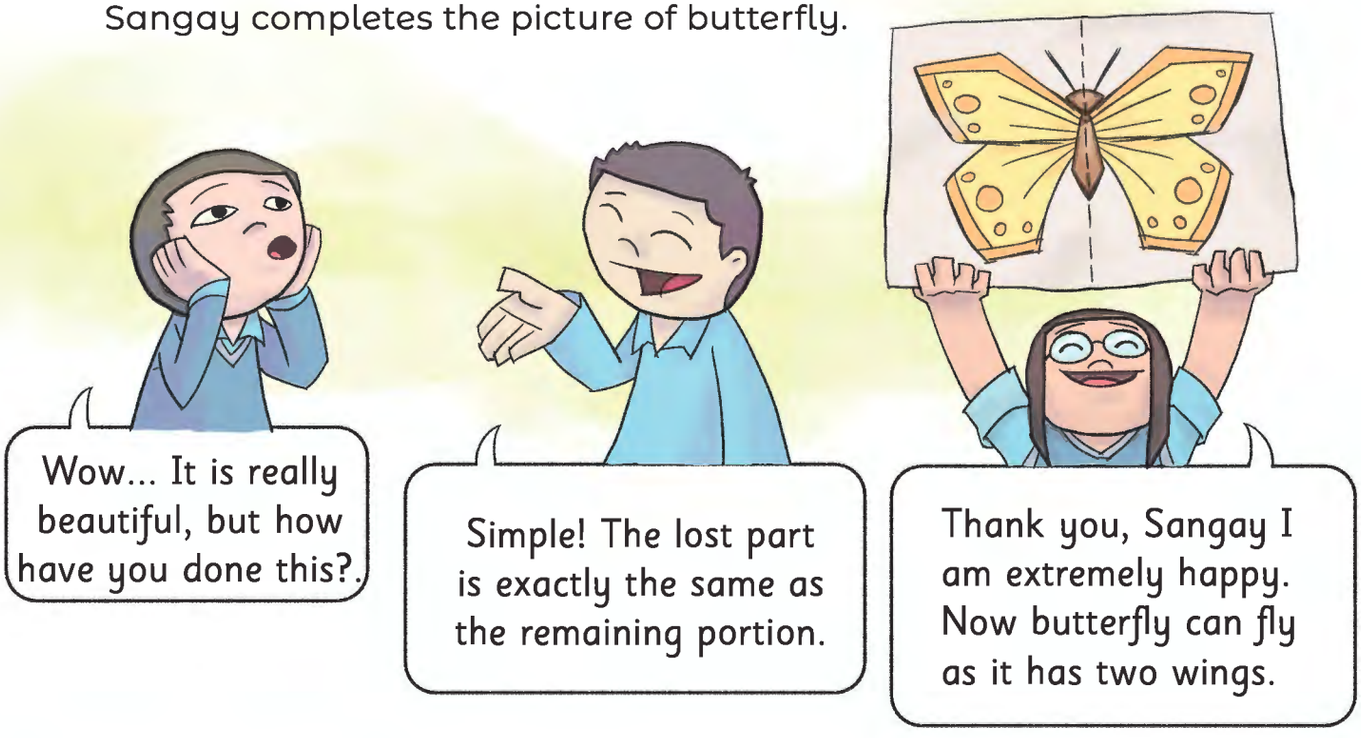
Teacher's Note: Encourage children to make pictures of their interest as shown.

2. Hidden Mirrors

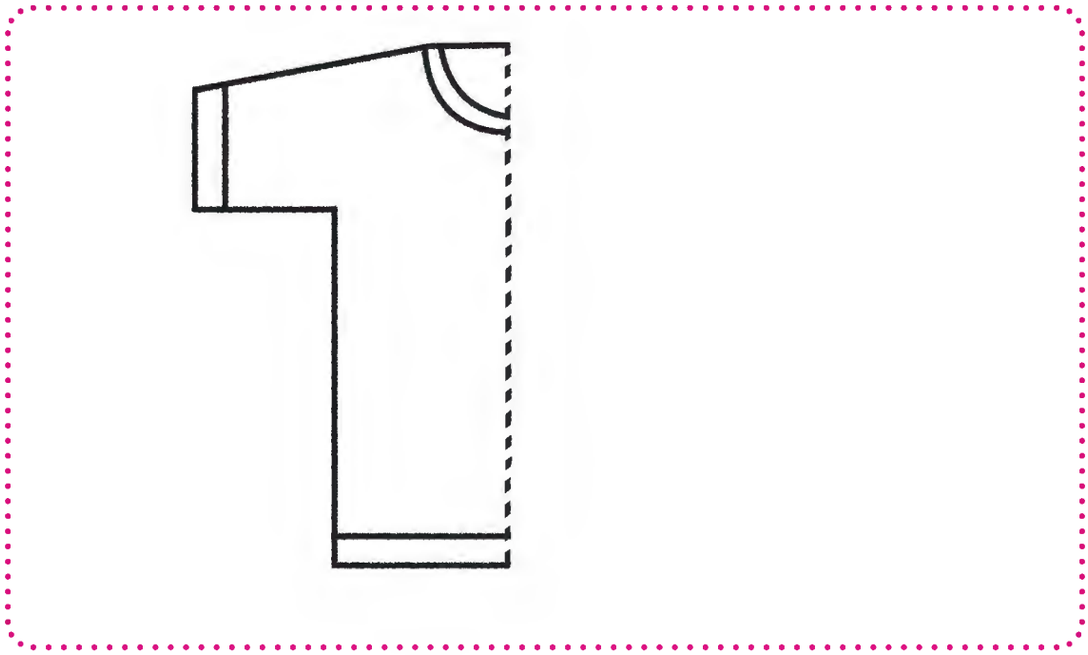
D7S7R9



Sangay completes the picture of butterfly.



1. Complete the remaining half of the T-shirt.



Look at the pictures given below. These pictures are prepared by the students of Penzong, PS East Sikkim. These images are called mirror halves. The dotted lines divide each picture into two similar mirror halves.

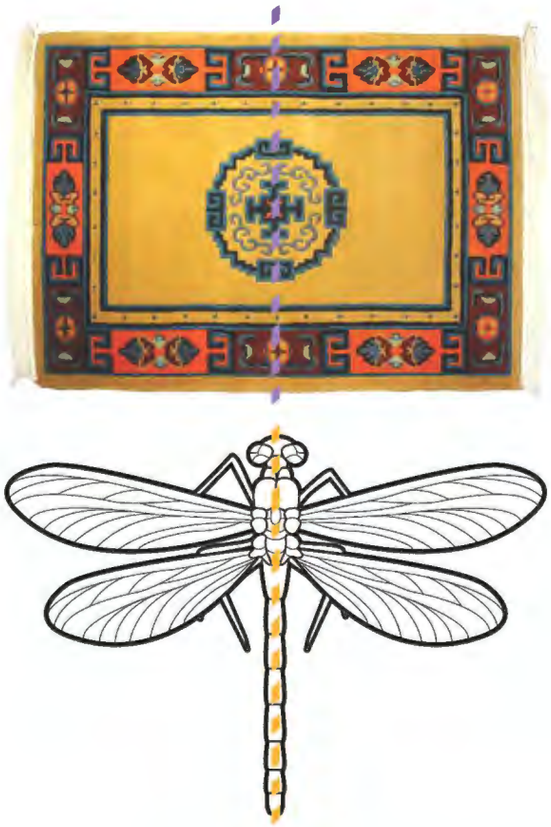
a. Can you guess how these are made?

b. Ask your friends and teacher and make some pictures like these.

c. Does your picture also have lines that halve it?

d. Which line is this?

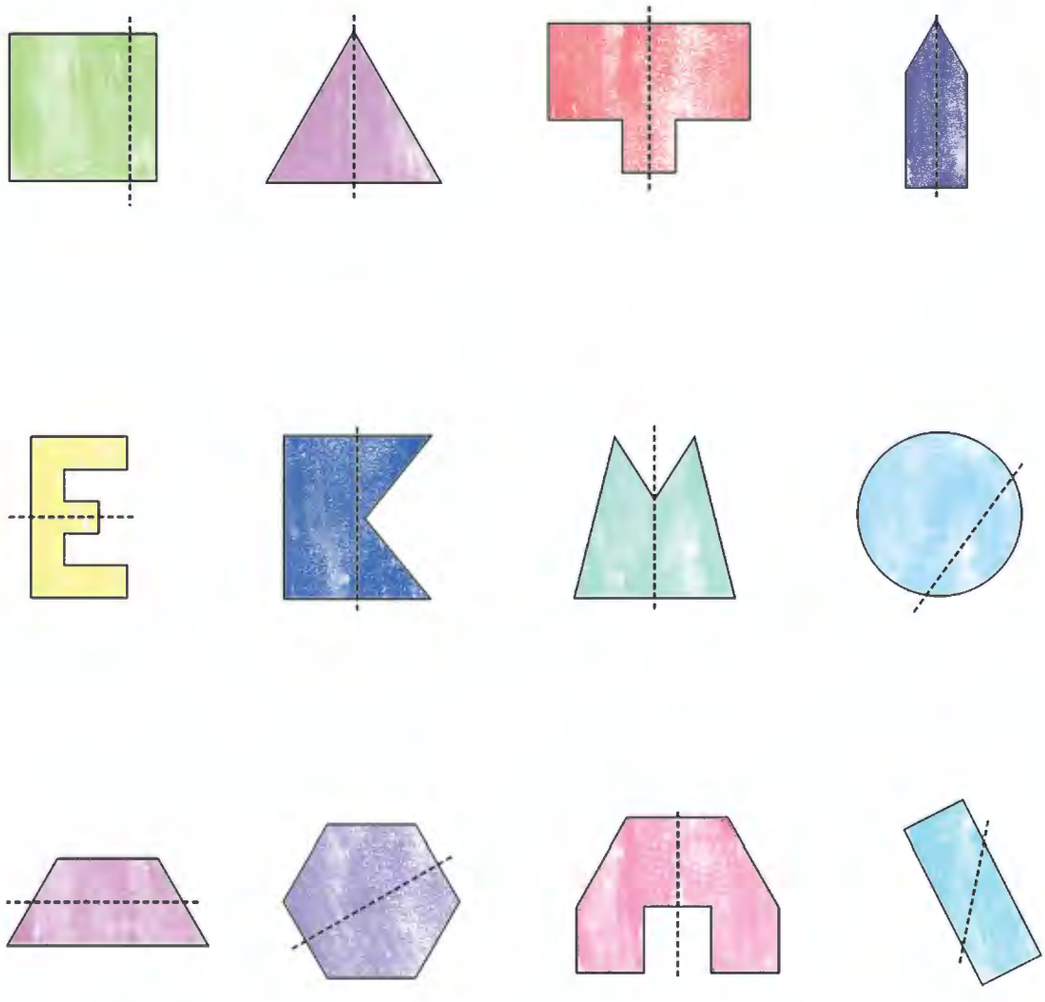
Look at the pictures given below. Do the dotted lines divide each picture into two mirror halves?



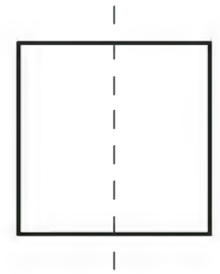
The dotted line which divides the picture into two mirror halves is called the line of symmetry.

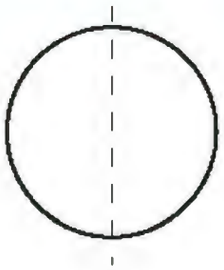
1. Using a dotted line can you divide the following pictures into two mirror halves?

2. Tell whether the dotted line in each shape is the line of symmetry. If not, can you draw a line of symmetry?



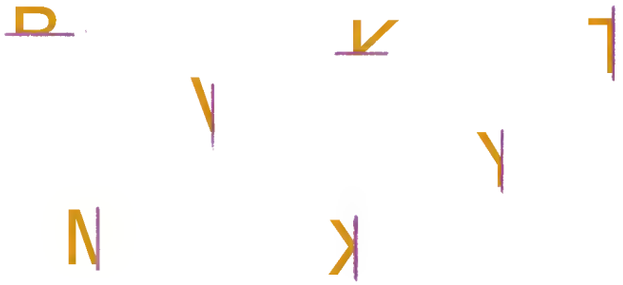
3. Can you identify which of the pictures given below are symmetrical and which are not?



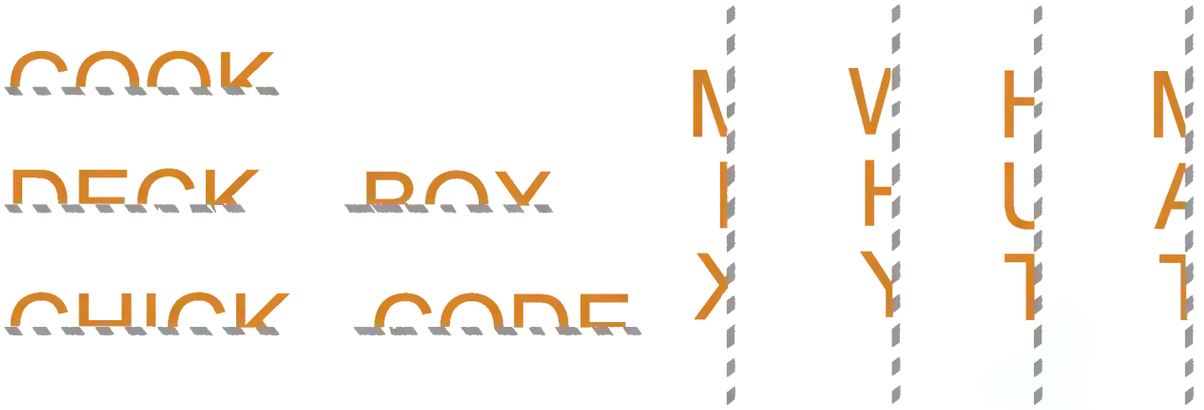


4. Draw some pictures/ figures having line of symmetry and some others not having line of symmetry in the box below:

5. Can you guess these letters from their halves?



6. Guess the words from their halves?



7. Which of these letters cannot be divided into two mirror halves?

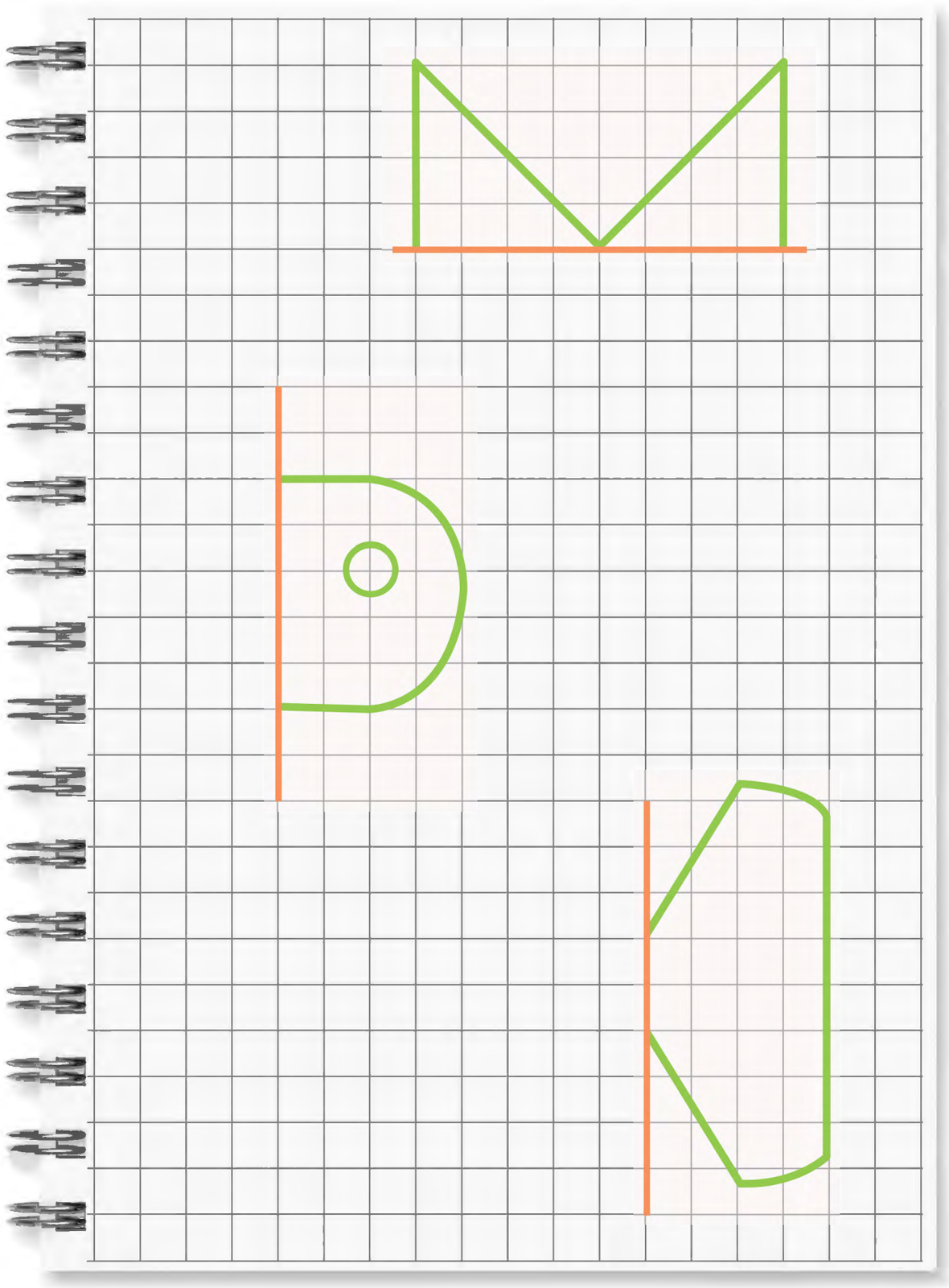
A B C D E F G I

J K L M N O P Q

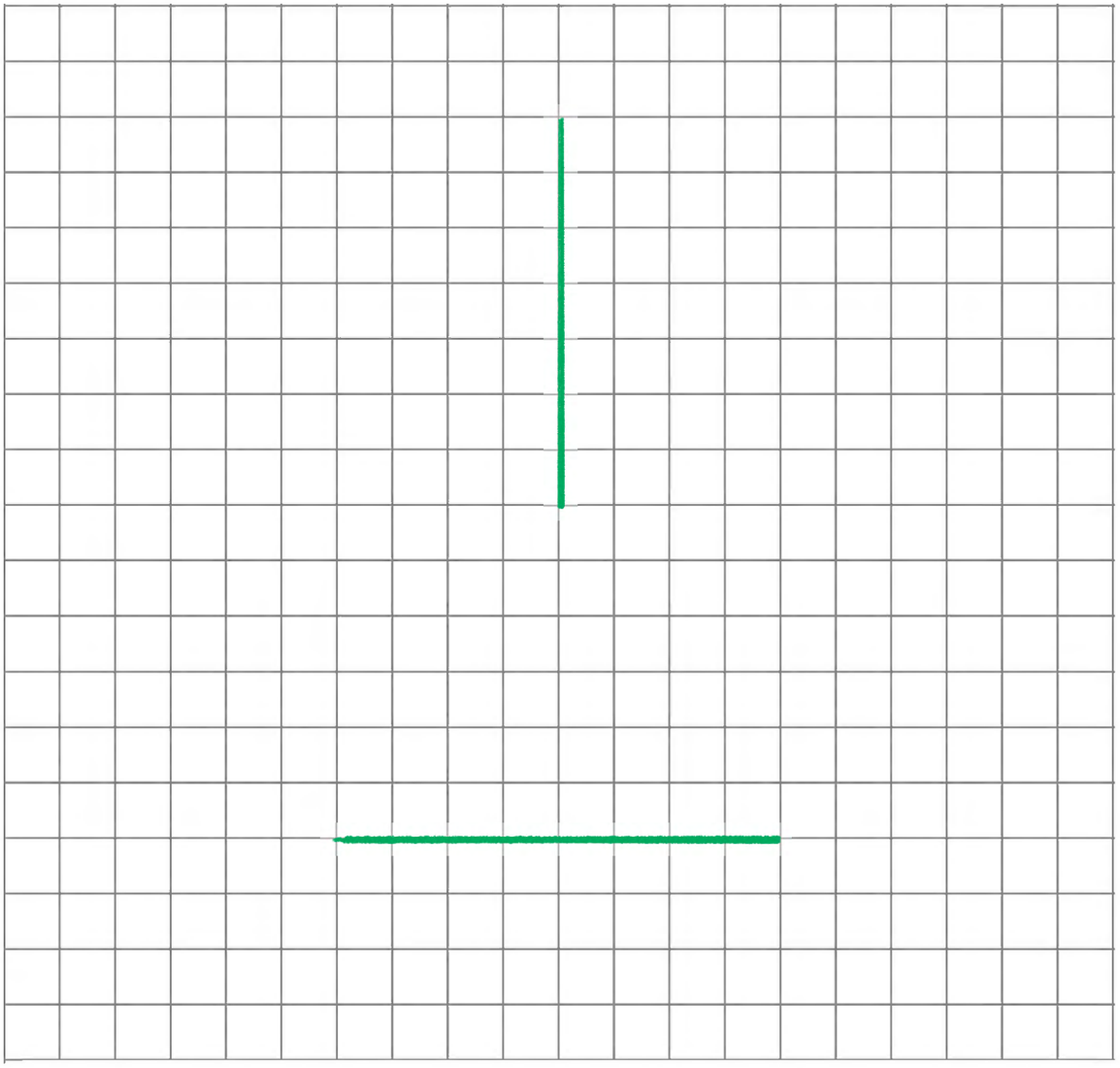
R S T U V W X Y Z

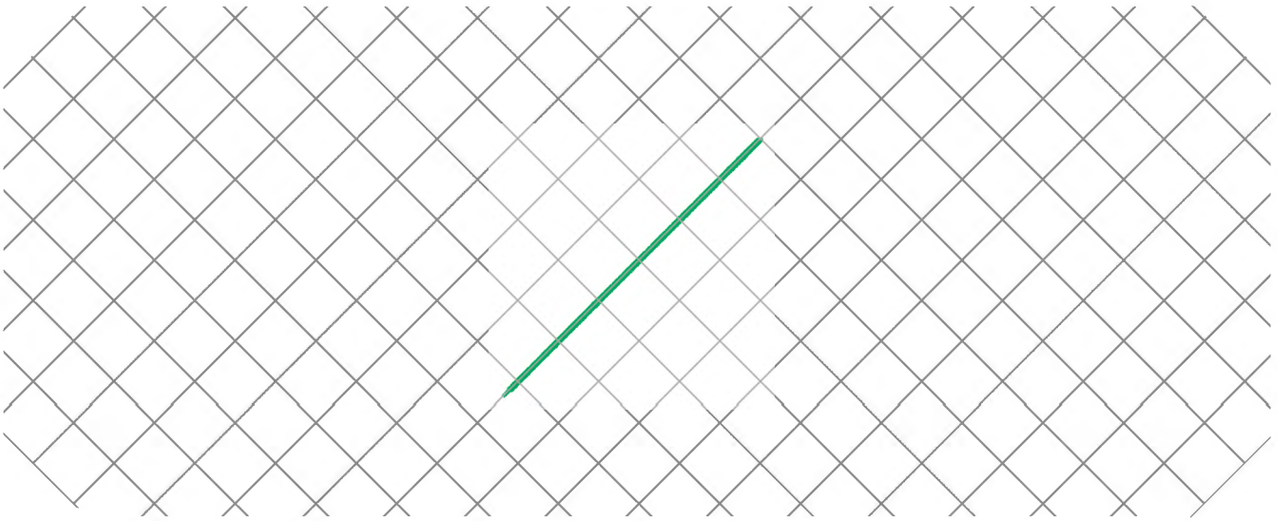
a. Which of these can be halved by a standing line (vertical line)?
b. Which can be halved by a sleeping line (horizontal line)?
c. Which can be halved by both lines?

8. Complete the pictures by drawing the other mirror halves:



9. Draw your own design and find the mirror image about dark green line.

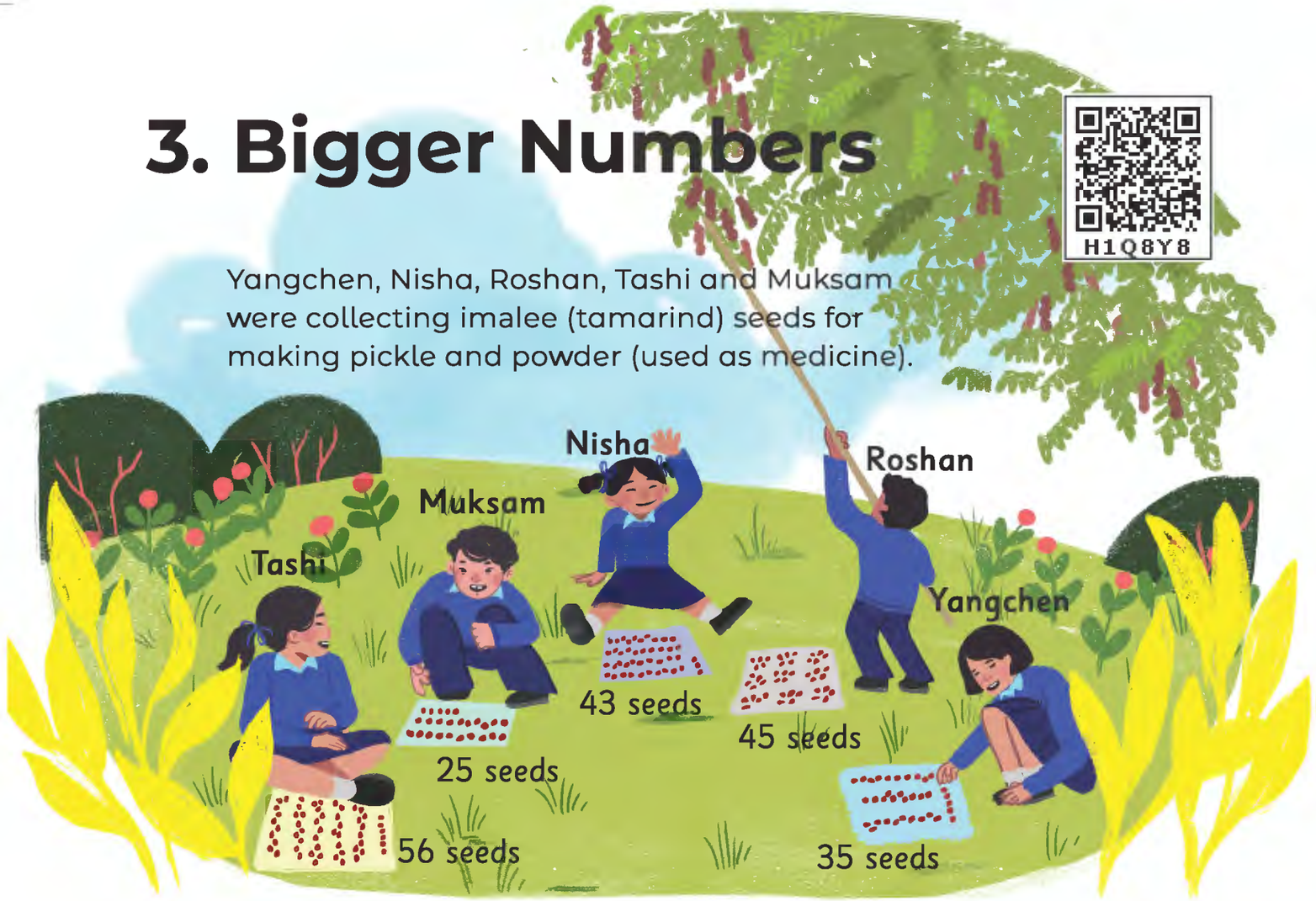




3. Bigger Numbers

H1Q8Y8

Yangchen, Nisha, Roshan, Tashi and Muksam were collecting imalee (tamarind) seeds for making pickle and powder (used as medicine).



a. _____ collected the most number of seeds.

b. Muksam will collect _____ more seeds to be equal to Roshan.

c. If Yangchen gets 6 more seeds, she will have _____ seeds.

d. How many children have more than 40 seeds? _____

e. Arrange the number of seeds collected in ascending order. (increasing order)

f. _____ needs 7 more seeds to have 50.

g. Yangchen has 5 seeds less than 40 and _____ has 5 seeds more than 40.

Maghey Mela at Jorthang

Adarsh and Prabin are good friends from Reshi in East Sikkim. Their mothers took them to Maghey Mela at Jorthang. They enjoyed traditional food, rotey-ping and ghurni at the mela.

Adarsh and Prabin were given ₹100 each by their parents for playing ghurni and rotey-ping. Ticket for the rotey-ping was ₹30 and for ghurni it was ₹10.

They played one round of rotey-ping and several rounds of the ghurni but lost every time they played.

At the end Adarsh was left with only ₹10 and Prabin had ₹20 with him.

a. Who played ghurni for more number of times?

b. How many times did Prabin play the ghurni game?

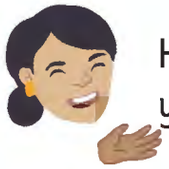
While playing ghurni (having numbers from 41 to 70), Adarsh chose number 45 and Prabin chose 70. But unfortunately the pointer of ghurni came to rest at number 60.

a. Who came closer to winning the game?

b. By how much did Adarsh miss the winning number?

They also took a round at traditional food stalls, handloom stalls and orchid (flower) gallery. They all enjoyed having sekwa, wachipa and momos in traditional food stalls and went home happily.

Numbers ahead



How old are you Pema?

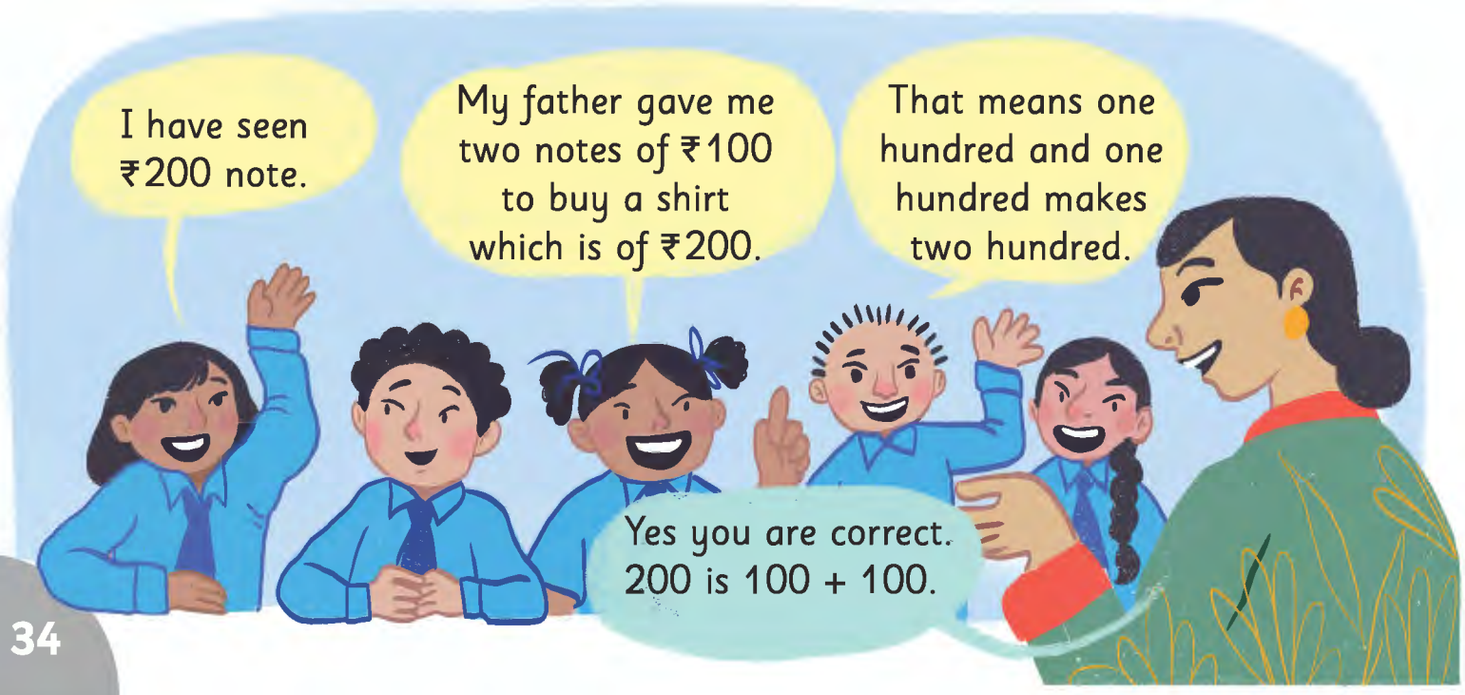
I am 8 years old.

That means, you have seen 8 summers so far. How old could your father or grandmother be?

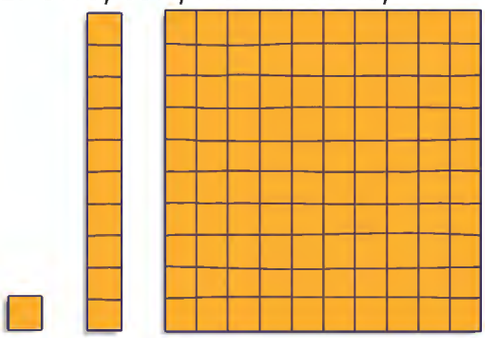
I cannot say exactly but father may be around 45 years old and my grandmother may be around 70 years.

Oh that's great. We human beings generally live around 80 to 100 years and sometimes some of us may even see more than 100 summers if we eat healthy and nutritious food, engage in work and do exercise regularly. But you know that tortoises live much longer even up to 200 or even more than that.

Madam how much is 200?

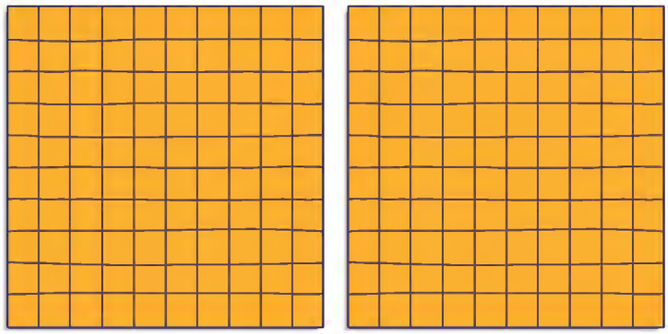


If one, ten, hundred is;



one (unit) ten (long) hundred (flat)

then 200 is



two hundred

The Number 108 (One Hundred and Eight)

Has anyone here have been to Gumpa? What all have you seen there?

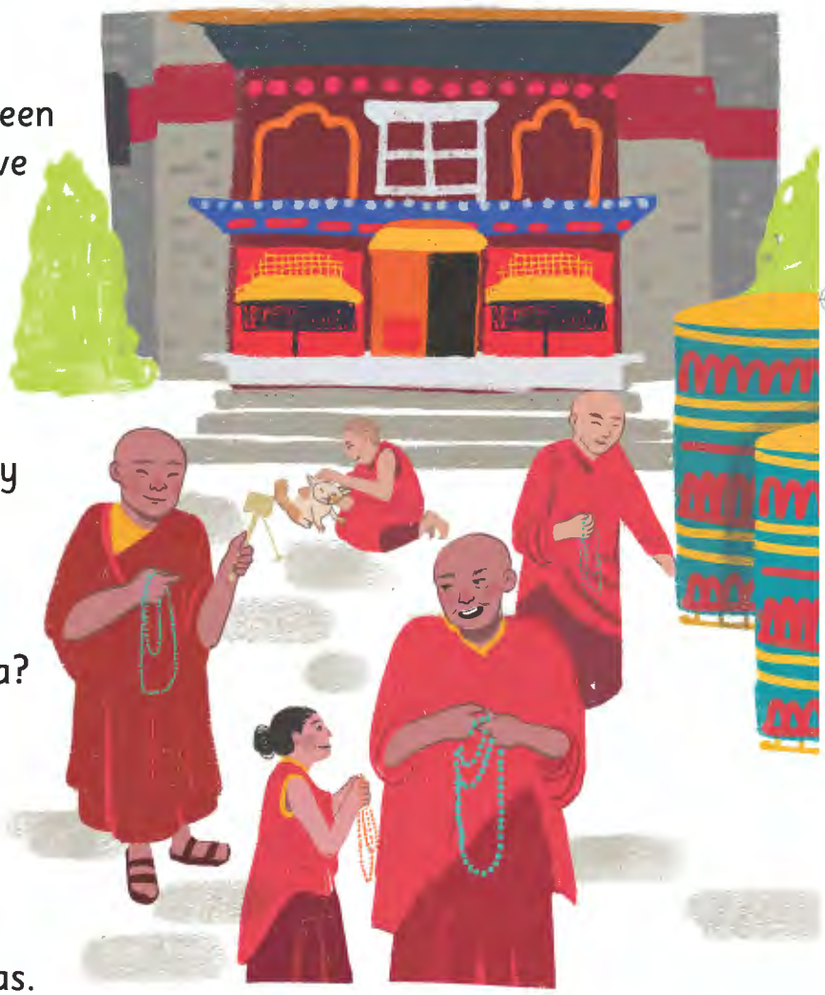
Yes, Statue of Buddha and many Lamas.

I have rotated the maney at Tashiding Gumpa.

Have you also observed Lamas carrying the mala?

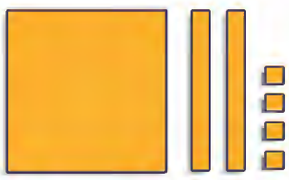
Yes teacher.

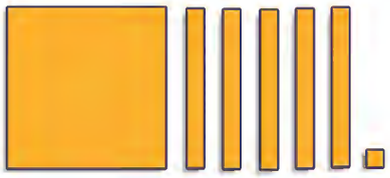
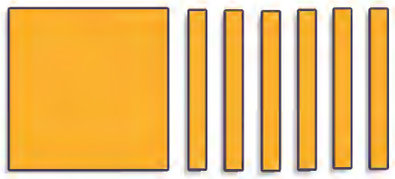
Did you know there are 108 beads in those malas.



Teacher's Note: Teacher may also use ganitmala having 200 beads and arrow cards for counting and making numbers. Ask students to find out the number of maney in monastery whenever they visit monastery next.

1. Let us now try to fill up the places below:

	Flat, Longs and Units	Number in figures and in words
a.		99 ninety nine
b.		101
c.		one hundred and five
d.		117 one hundred and seventeen
e.		124
f.		146

	Flat, Longs and Units	Number in figures and in words
g.		151
h.		154 one hundred and fifty four
i.		160
j.		one hundred and seventy
k.		one hundred and seventy eight
l.		one hundred and ninety nine

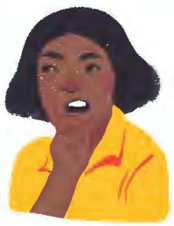
Guessing Game

During Annual function day of school, Rinchen came up with a bottle having maize seeds and asked everyone present there to guess how many seeds were there.

Rinchen

Can you guess how many seeds are there?

Can you give some hint?

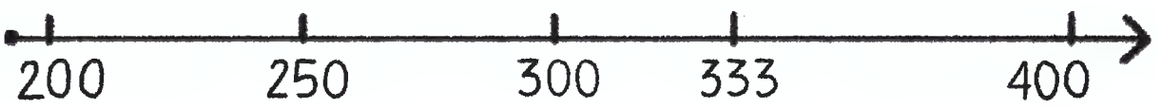


Mary

Ok. Seeds are more than 200 and can go up to 400.

So the number recorded were as follows:

201, 219, 250, 293, 299, 300, 301, 318, 333, 382, 390, 400



Finally the seeds were counted and Mary with correct guess of 382 seeds won the game and the first prize.

a. Which number won the second prize?

b. By what margin did the person with a guess of 400 seeds miss the first prize?

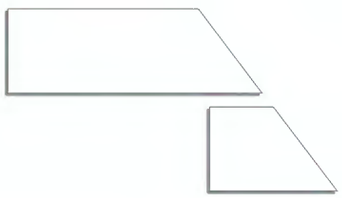
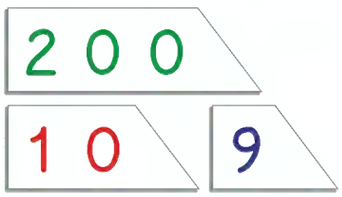
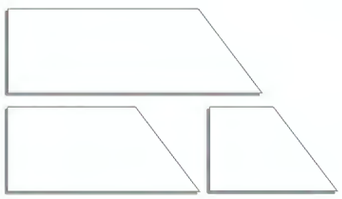
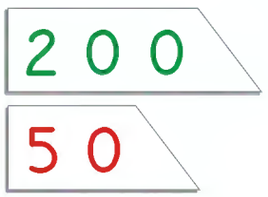
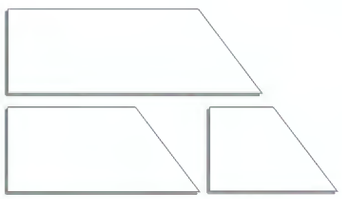
Number in figures	Number names	Arrow cards
400	four hundred	400
250	two hundred and fifty	200 50 250
382	three hundred and eighty two	300 80 2 382

1. Let us match the two columns

203	600 1
581	nine hundred and ninety nine
601	
754	five hundred and eighty one
432	700 50 4
999	

Teacher's Note: Encourage use of arrow cards and make numbers as shown above.

2. Let us fill up the blanks given under:

	Arrow cards	Number in figures and in words
a.		201 two hundred and one
b.		
c.		225
d.		two hundred and fifty
e.		276
f.		300 three hundred

	Arrow cards	Number in figures and in words
g.	3 0 0 1	301 three hundred and one
h.		 three hundred and eight
i.		333
j.	3 0 0 7 0 1	371
k.		 three hundred and ninety
l.		399

3. Complete the pattern given below

a.

b.

c.

d.

e.

5. Let us colour the numbers

Find these numbers in the chart and colour them.

GREEN

a. Three hundred and twenty seven
b. One hundred and fifty
c. 900 + 50 + 5
d. Seven hundred and two
e. Four hundred and thirty four
f. Eight hundred and ninety three
g. Sixty eight

PURPLE

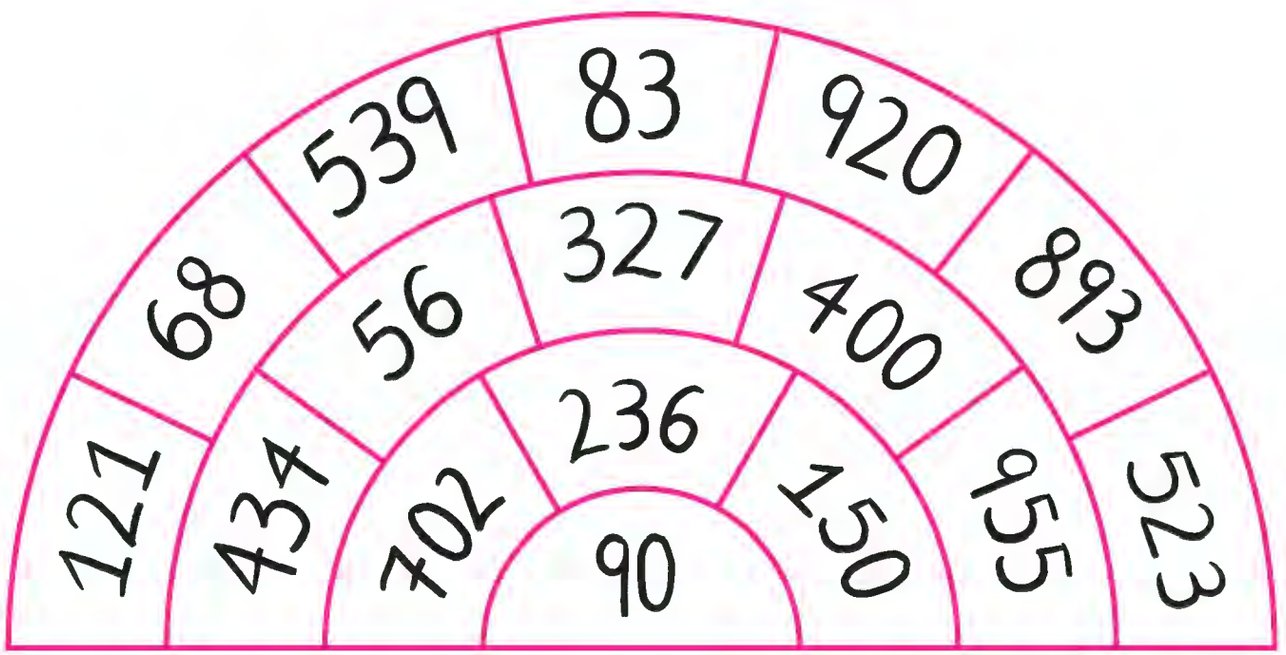
a. Five hundred and thirty nine
b. Fifty six
c. Nine hundred and twenty
d. Four hundred
e. Two hundred and thirty six

RED

a. 500 + 20 + 3
b. One hundred and twenty one
c. 70 + 9 + 4

BLUE

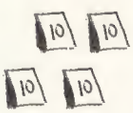
a. 80 + 2 + 8



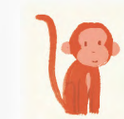
Lazy Crazy's Shop

This is the jungle shop. Lazy Crazy gives things only in packets of hundreds, tens and loose items.

1. Find out how many packets of tens, hundreds and loose items each animal will take. Fill in the blanks.

		Packets of 100	Packets of 10	Loose items
	143 carrots			
	210 coconuts			
	342 bananas			

2. Lazy Crazy also has a crazy way of taking money. He takes only in ₹100 notes, ₹10 notes and ₹1 coins. Now find out how they will pay him for what they have taken.

		₹100	₹10	₹1
	₹425	₹100 ₹100 ₹100 ₹100	₹10 ₹10	1 1 1 1 1
	₹143			
	₹240			
	₹55			

Who am I?

I come between 300 and 350 and there is 5 in my name — **150**

I have 9 in my name and am very close to 90 — **100**

I am equal to ten notes of ₹10, I am ₹___ — **600**

I am century + half century — **325**

I am equal to 100 + 200 + 300 — **92**

Activity:

1. Make 2 digit numbers using digits 7 and 9.

   a. Without repeating 

   b. With and without repeating 

   c. Arrange them in increasing or decreasing order and find out the smallest and greatest numbers you made.

smallest greatest

2. Make 3 digit numbers using 2, 7 and 5 and colour the greatest number.

   a. Without repeating

Number in figures	Number name
257	Two hundred and fifty seven
572	

b. With and without repeating

222		725		255				
							772	
		557			257			

3. We are family members. We are made up of numbers 3, 4 and 8 either repeating or all different.

Can you now help in giving us names?

384			333					
					483			
	433						834	

a. Write the smallest and the greatest of the above.

Teacher's Note: Ask children to show the greatest number using arrow cards and the smallest number using FLU and may also give several examples of his/her own.

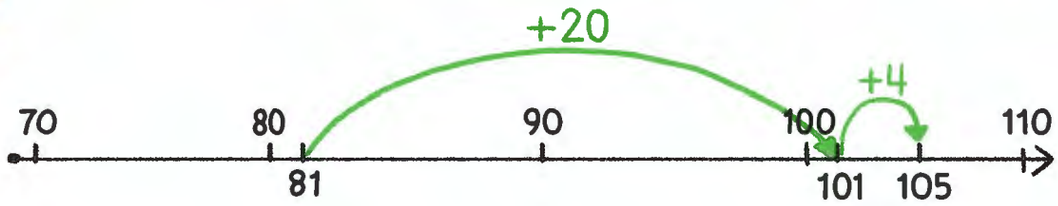
4. Sum-Difference

Addition and Subtraction:

Due to a heavy landslide, people from a village in East district have been relocated to a relief camp. 81 people arrived in the camp on Day 1 followed by 24 more on Day 2.

How many people need to be fed now?

Total no. of people in the camp is
81 + 24 = 81 + 20 + 4

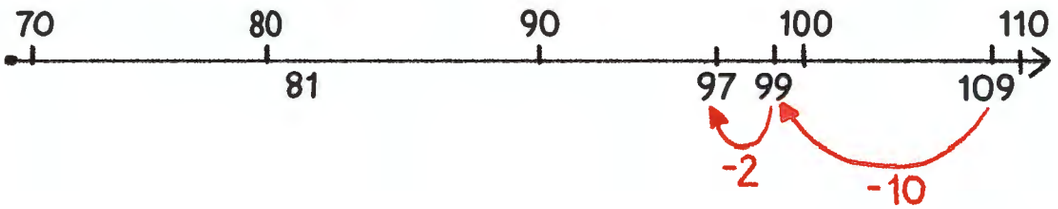


So food is required for 105 people.

In another landslide, people from a village in west district have come to another camp. Out of 109 people on the list, 12 are missing.

So food has to be arranged for how many people in the camp?

Total no. of people in the camp is
109 – 12 = 109 – 10 – 2



So food is needed for 97 people.

1. It's your turn to try:

a. 168 – 32 =

b. 132 + 27 =

c. 33 less than 89 is

d. 125 and 41 more is

e. 17 added to 139 gives

f. Reducing 78 by 34 gives

g. 307 and 24 more is

h. Take 41 away from 287, we get

Adding bigger (three digit) numbers:

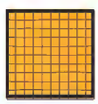
1. On a Sunday, Shreya helped her father sell oranges. On that day before lunch hour her father sold 372 oranges and after lunch he sold 164 oranges.

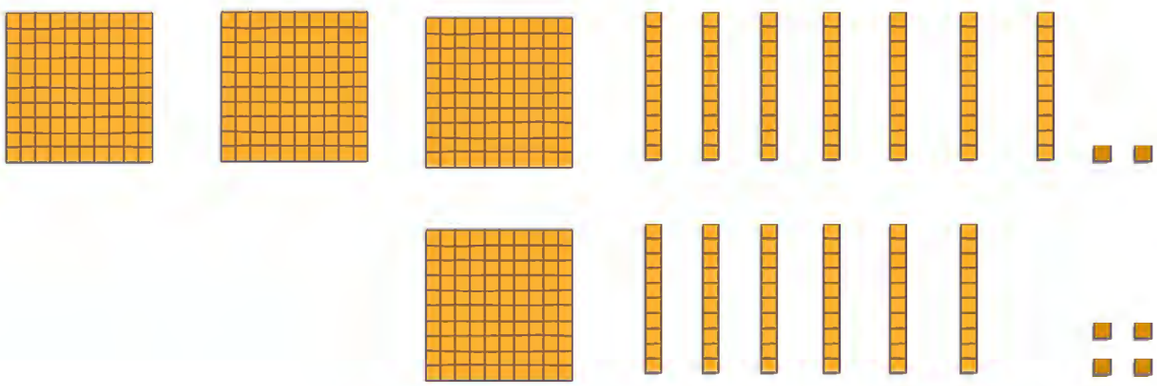
How many oranges did they sell on that Sunday?

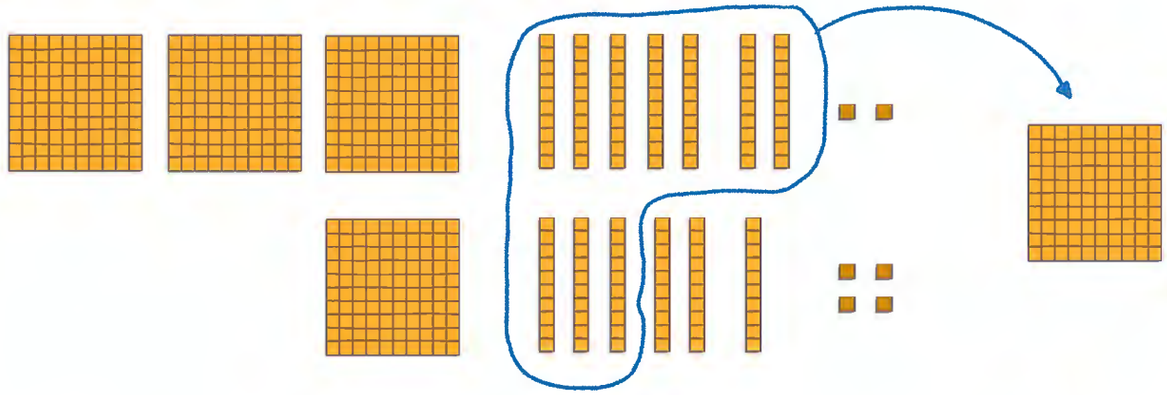
372 + 164 = ?

372 is around 400 and 164 is close to 150, so the total should be roughly 400 + 150 = 550

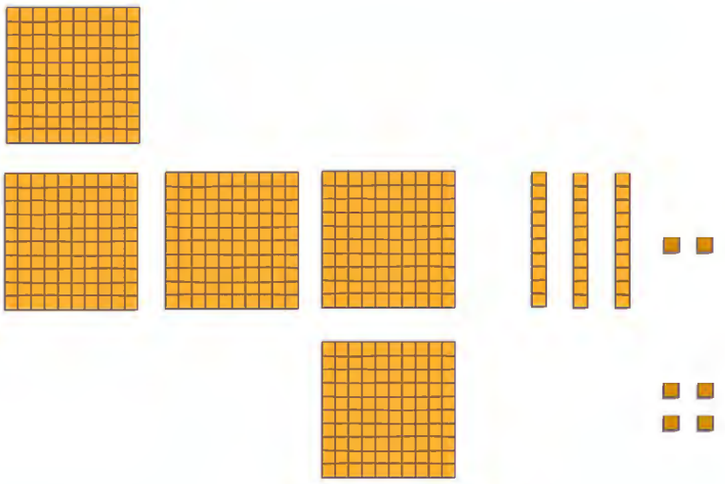
Total number of oranges sold is

			
Oranges sold in the morning	3	7	2
Oranges sold in the evening +	1	6	4
Total =			





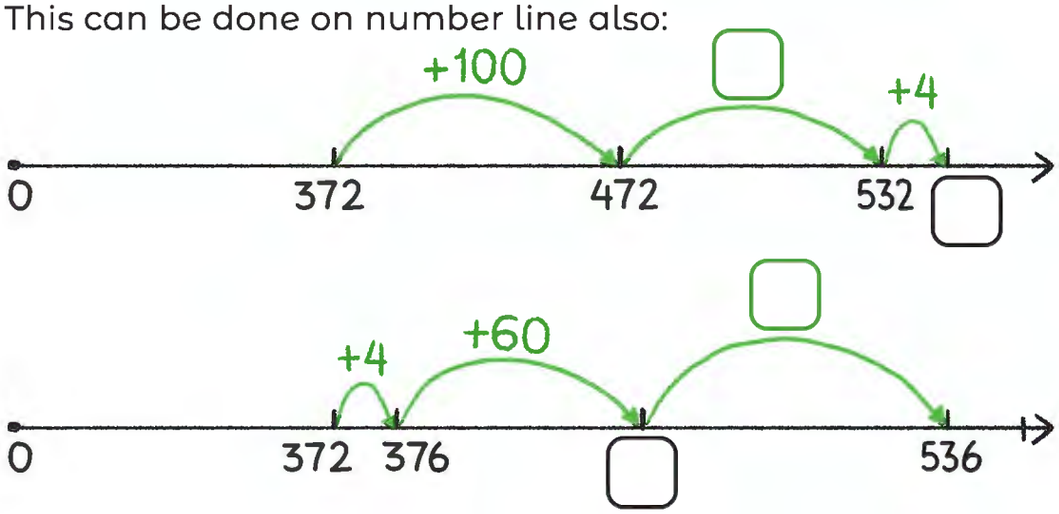
10 tens is 1 hundred



	1		
	3	7	2
+	1	6	4
=	5	3	6

So all together, they sold 536 oranges.

This can be done on number line also:



a. Which one did you like?

b. Which one gave you better estimate?

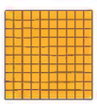
2. During the puja vacation Shreya and her brother Rehan visited their vegetable field and helped their parents in packing of mushroom packets for selling. Rehan and his mother packed 487 packets and the team of Shreya and her father packed 376 packets in a day.

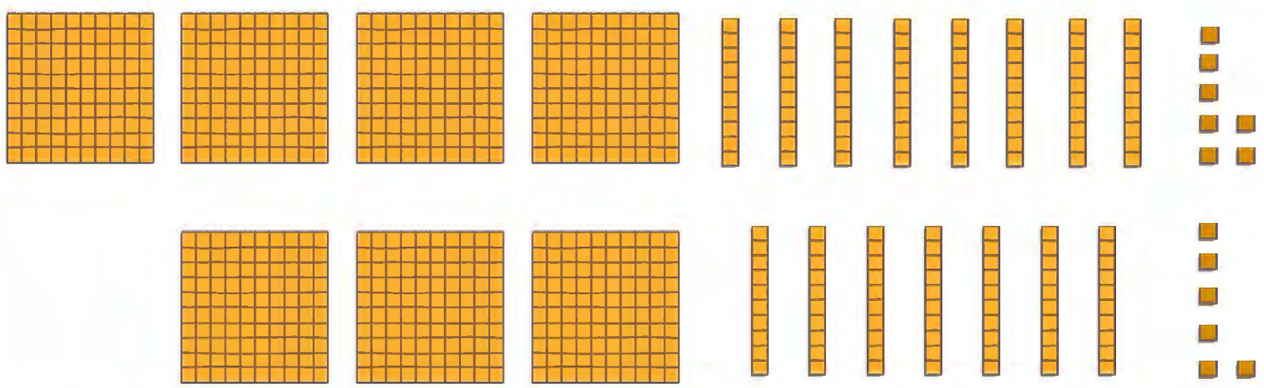
How many packets of mushroom did the family pack on that day?

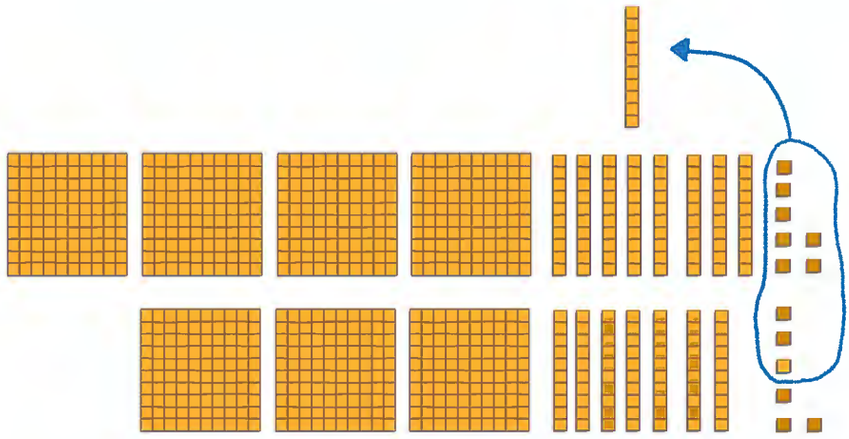
487 + 376 = ?

487 is roughly 500, 376 is also close to 400, so the sum should around 500 + 400 = 900

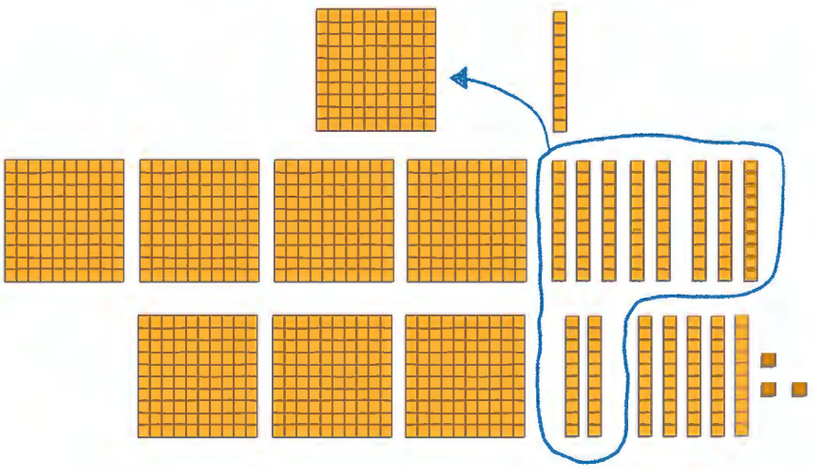
Total number of mushroom packets packed

				
Rehan and mother		4	8	7
Shreya and father	+	3	7	6
Total	=			





		1	
	4	8	7
+	3	7	6
=			3



	1	1	
	4	8	7
+	3	7	6
=	8	6	3

Total number of mushroom packets packed by the family is 863.

Now try these:

Guess the answer before you work it out in details.

1. From North and East Sikkim, 605 teachers visited the Patanjali Ashram at Hardwar to learn Yoga. 348 more teachers from South and West district also took part in this.

How many teachers took part for yoga altogether?

$$\begin{array}{r} 605 \\ +\ 348 \\ \hline \\ \hline \end{array}$$

2. In a football match played between United Sikkim Football club and the Boys Football club, 386 people supported the United Sikkim Football club and 492 of the people supported the Boys Football club.

How many people watched the match?

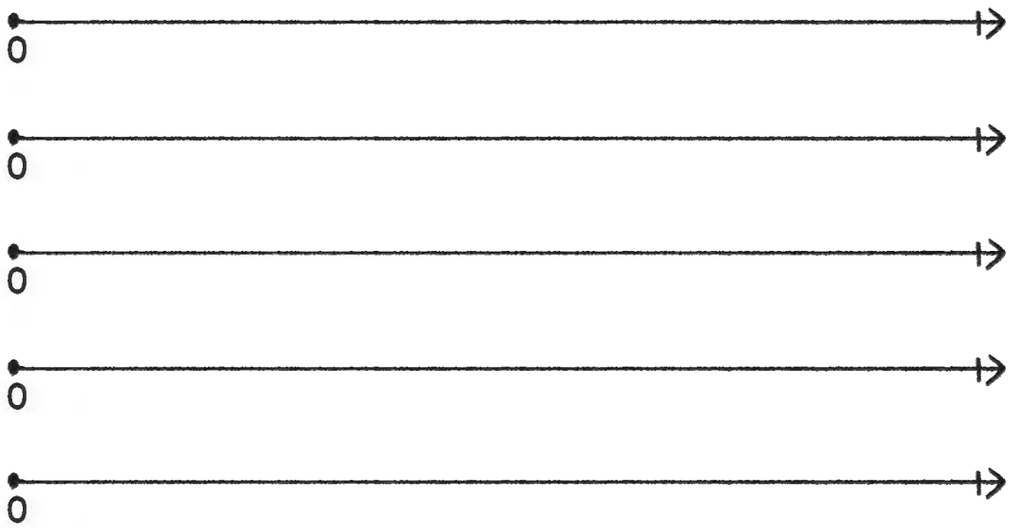
$$\begin{array}{r} 492 \\ +\ 386 \\ \hline \\ \hline \end{array}$$

3. The head master in a town school kept the record of total students from the town and nearby villages as in the table below –

Students	from town	from village	Total
Girls	249	178	
Boys	237	327	
Total			

Find out-

a. How many students in the school are from the town?
b. How many students in the school are from nearby villages?
c. How many girl students are there in the school?
d. How many boy students are there in the school?
e. How many students are there in the school?



It's Practice time:

1. Estimate the sum. Add and check against your estimation.

	Estimated sum	Exact sum
27 + 663	20 + 660 = 680	690
231 + 63		
145 + 210		
315 + 147		
248 + 98		

2. **Write out the numbers below in three different ways:**

If you add the numbers in each row of the first table, it's always 48. Do the same for the numbers in other tables.

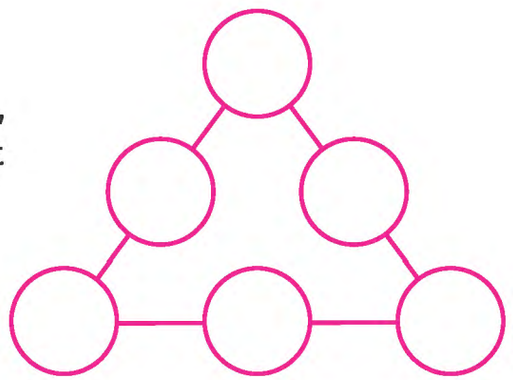
Table - 1
48
40 + 8
+ 18
+

Table - 2
169
+ 29
+
70 +

Table - 3
328
70 +
+
+ 108

3. **Can you solve this puzzle?**

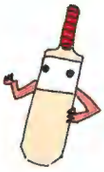
Write the numbers from 2, 3, 4, 5, 6 and 7 in the circles, so that the sum of the numbers on each side of the figure is 15.



Subtracting bigger (three digit) numbers:

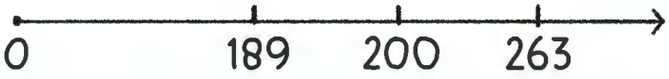
1. In a one-day match, the team A made 263 runs. The team B made 189 and got all out. Which team won and by how much?

Team A won!



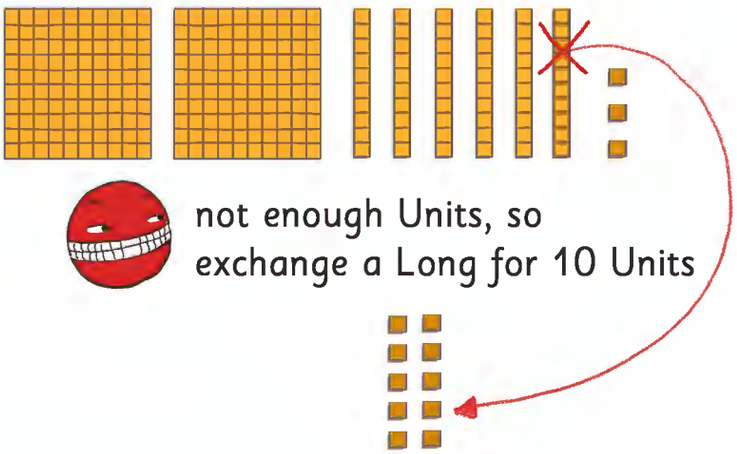
Why?

Team A made more than 200 runs. Team B made less than 200.



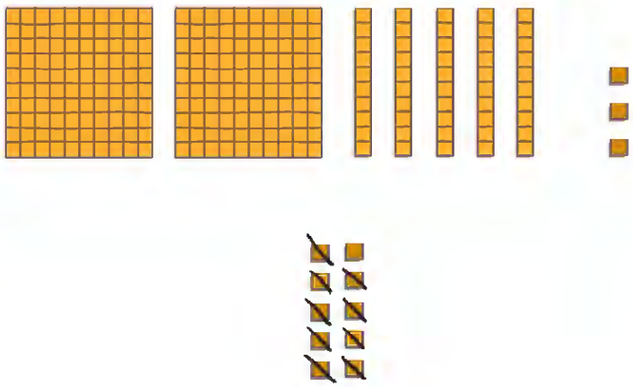
So Team A won by 263 – 189 runs

Would that be
(a) more than 100 or
(b) less than 100?



not enough Units, so exchange a Long for 10 Units

		5	13
	2	6	3
–	1	8	9
=			



		5	13
	2	6	3
–	1	8	9
=			4

not enough Longs, so
exchange a flat for 10 longs.

	1	15 ~~5~~	13
	~~2~~	~~6~~	~~3~~
–	1	8	9
=			4

	1	15 ~~5~~	13
	~~2~~	~~6~~	~~3~~
–	1	8	9
=		7	4

Let's try this on number line

a. Which one do you like? Why?

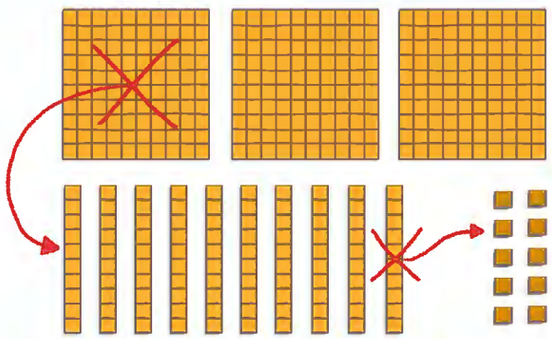
2. During the campaign '10 minutes to Earth', Rehan Gurung donated 300 saplings. 137 of the saplings donated were of pine tree and the rest were of orange trees.

How many saplings of orange tree were donated by Rehan?

The number of saplings of orange tree is equal to total number of saplings – pine saplings ; that is 300 – 137.

Guess... Number of saplings of orange tree is-

(a) More than 100 or (b) Less than 100

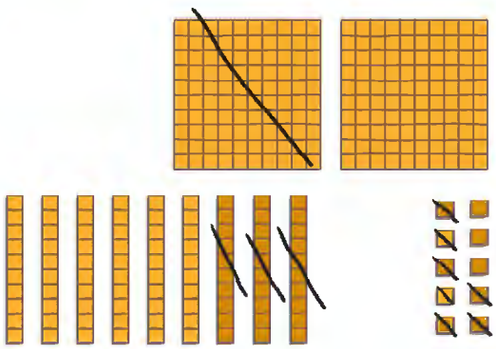


Total no. of saplings

Pine saplings –

Orange saplings =

2	9 ~~10~~	10
~~3~~	~~0~~	~~0~~
1	3	7



Total no. of saplings

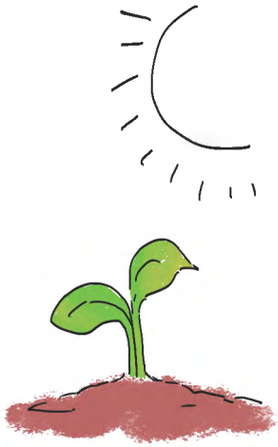
Pine saplings –

Orange saplings =

2	9 ~~10~~	10
~~3~~	~~0~~	~~0~~
1	3	7
1	6	3

So number of Orange saplings donated by Rehan during the campaign '10 minutes to earth' is 163.

It's your turn to try:



1. To construct a housing colony, government had to cut 235 trees. But for the protection of environment the government planted 980 trees in and around housing complex.

How many more trees did the government plant than the number of trees cut?

980
– 235

2. Dorji and Sonam collected 250 songs from Sikkim. Dorji collected 179.

How many did Sonam collect?

250
– 179

3. A group of students are visiting a monastery on top of a hill with 540 steps leading to it. They have climbed 276 steps.

How many more do they have to climb?

540
– 276

4. Solve the following:

2 5 4 – 1 2 3	4 5 2 – 3 5 9	1 6 4 – 9 7
6 8 4 – 4 2 3	7 0 1 – 3 3 9	4 0 0 – 1 5 7

5. Check your answer:

3 7 4 – 1 2 3 = 2 5 1	2 5 1 + 1 2 3 = 3 7 4
4 0 7 – 1 9 3 =	+ 1 9 3 = 4 0 7
6 0 0 – 5 2 1 =	+ =
3 6 2 – 2 9 5 =	+ =

Making Problems:

1. 125 + 89

During a picnic on a river bank students collected 125 beautiful stones for decoration in the school and teachers collected 89. How many stones were collected in all?

I had planted a creeper which grew to 125cm last year. This year it has grown 89cm more. How long is the creeper now?

2. 231 – 146

I skipped 146 times before tripping and my cousin skipped 231 times. Who skipped more and by how much?

I counted 231 flowers in our mask melon plants. But only 146 of them became fruits. How many flowers didn't become fruits?

3. Solve these

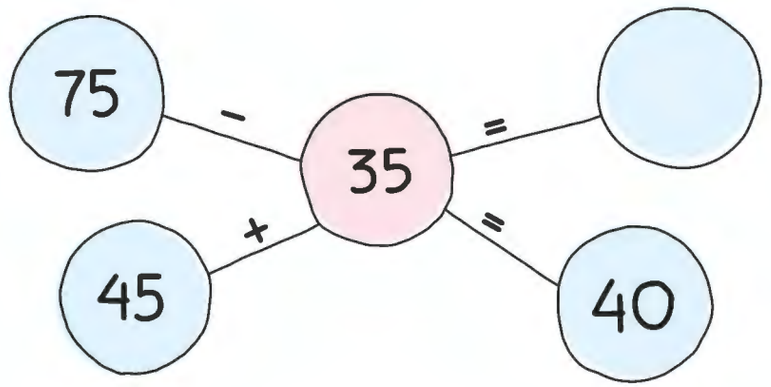
a. 175 + 203 c. 247 + 418

b. 521 – 156 d. 465 – 28

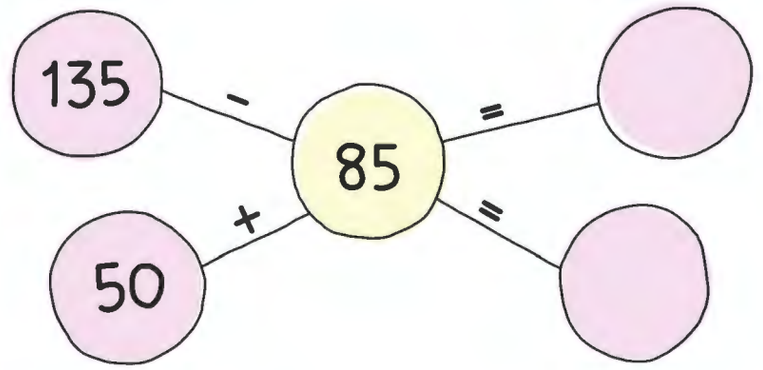
Make problems for each one like the children above.

Maths for fun:

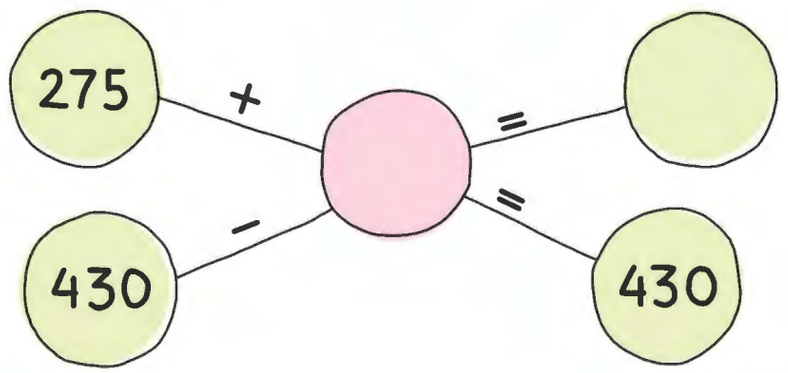
1.



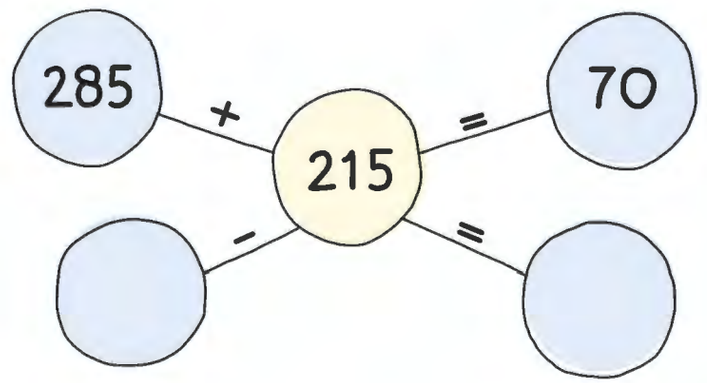
2.



3.



4.



5. Playing with Scale

U2S4H4

Ashis, Diki and Sujata have an activity in their class today. They decide to go to shop to buy lace for the activity.

Uncle, please give us 3 arms lace for our activity.

Here is 3 arms lace.

It's 4 arms long!

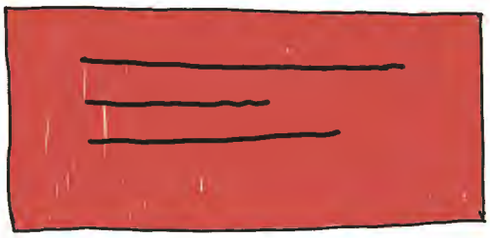
It's more than 4 arms!

It's less than 4 arms but more than 3.

Let us ask our teacher.

Why did we get different measures?

Each of you measure your arm length and cut a string that long. Now compare your strings.



I got it! Our arm lengths are different.

Now take these scales and measure the lace.

Same here.

It is 4 times the length of the scale.

Here, I too got 4 times!

All of us got the same measure because our scales have the same length.

We got different measures with arms because our arms have different lengths.

This is a ruler ! (centimetre scale– 30cm).

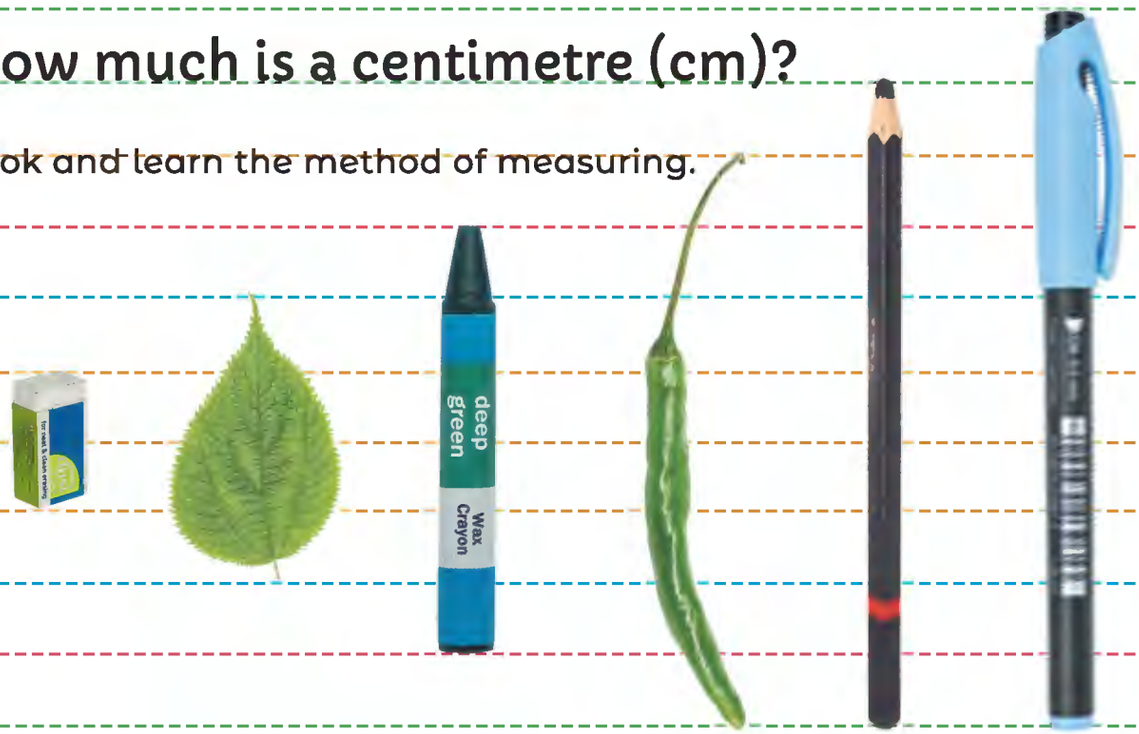
Let us find:

1. Measure your arm and your parent's arm. What is the difference?

2. Choose a plant growing near your home. Measure the height of the plant. After 2 months measure the height of the same plant and find the difference in height.

How much is a centimetre (cm)?

1. Look and learn the method of measuring.



a. The crayon is 6 centimetres long.

b. The eraser is _____ centimetres long

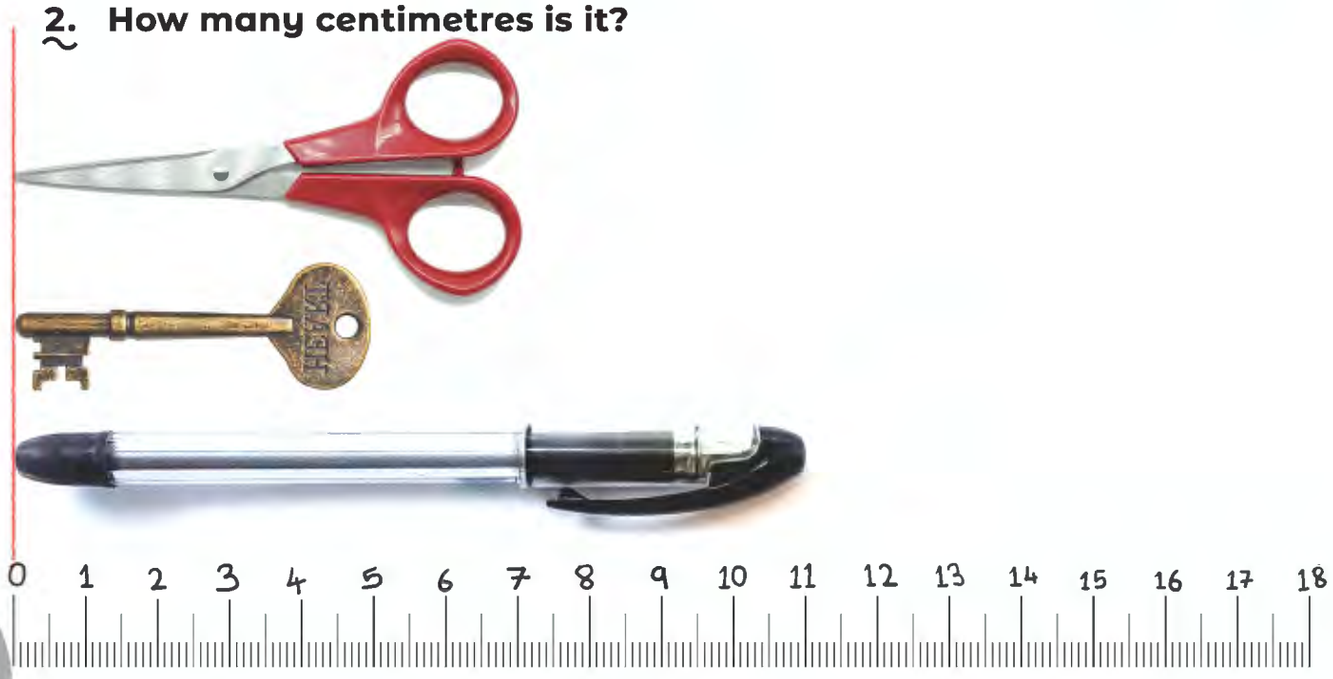
c. The chilli is _____ centimetres long.

d. The leaf is _____ centimetres long.

e. The pen is _____ centimetres long.

f. The pencil is _____ centimetres long.

2. How many centimetres is it?



Activity

1. Look for things that are-

a. About 2 centimetres long

b. About 5 centimetres long

c. About 10 centimetres long

Draw them here

2. Measure the length of the following body parts.

Body Parts	Length (My Measurement)	Length (Friend's Measurement)	Length (Friend's Measurement)
			
			
			
			

a. Who has the biggest head?

b. Who has the longest nose?

c. Who has the shortest palm?

Shopping time

Sujata and her mother went to market to buy a piece of cloth to make a shirt.

What is it?

It is a metre scale.

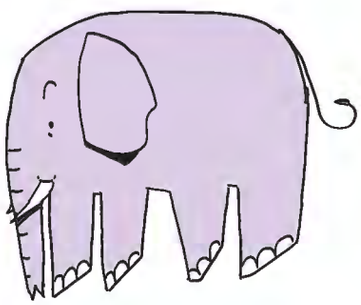
Can a shopkeeper measure the shirt piece with a ruler?

Yes, he can measure with ruler but that would take too long. He measures it with the help of metre rod or metre tape. It takes less time.

1. Find out from your tailor the length of cloth needed to make a shirt or dress for you.

1 metre is equal to 100 centimetres.

I am a cricket bat. I am about 1 metre long.

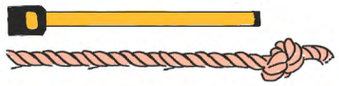


I am a baby elephant. I am also about 1 metre tall.

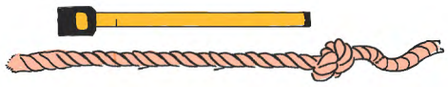
My metre rope.

Step 1 - Take a long rope and tie a knot at one end.

Step 2 - Take a measuring tape and measure 1 metre from the knot.



Step 3 - Mark the point which is 1 metre from the knot.



Step 4 - Tie another knot at this mark.

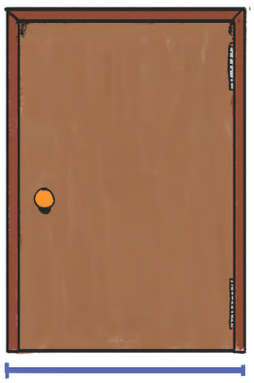
Step 5 - Cut off the remaining rope after the knot.

This is your metre rope now.

Guess and Check

Use your metre rope to find which of these things are more or less than 1 metre.

1. Width of the door



○ More than 1 metre

○ Less than 1 metre

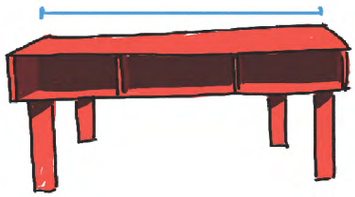
2. Length of the blackboard

- ◯ More than 1 metre
- ◯ Less than 1 metre

3. Length of teacher's table

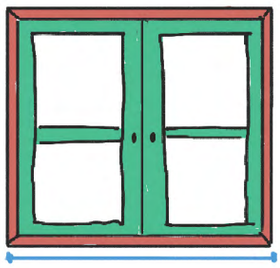
- ◯ More than 1 metre
- ◯ Less than 1 metre

4. Length of your desk



- ◯ More than 1 metre
- ◯ Less than 1 metre

5. Width of the windows



- ◯ More than 1 metre
- ◯ Less than 1 metre

a. List the things that would not pass through your classroom door. Why?

b. Guess the things that would pass through your classroom window.

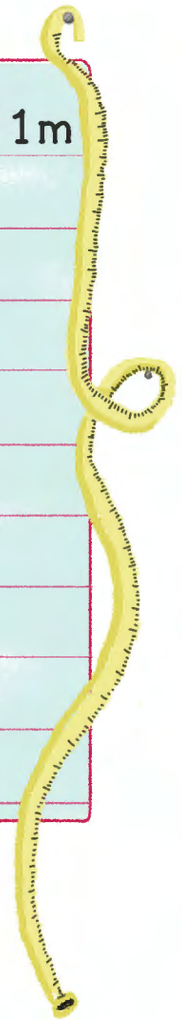
c. Compare the widths of the door and the windows of your classroom.

Find things at your home that are more or less than 1 metre.

Height chart

1. Using your measuring tape make a chart of the heights of your friends.

Name	taller / shorter/ equal to 1 metre	How many cm more / less than 1m
Arohi	taller	3 cm



2. Tick ✓ what can be measured in centimetres and give a smiley 🙂 to what can be measured in metres?

- ◯ a. Length of the playground
- ◯ b. Length of a bus
- ◯ c. Length of your hand
- ◯ d. Height of the ceiling
- ◯ e. Length of the rope where clothes are hung
- ◯ f. Length of your hair
- ◯ g. Height of a cow
- ◯ h. Length of a tie
- ◯ i. Length of a ribbon
- ◯ j. Length of a bag
- ◯ k. Height of a bamboo tree

Trip to Gangtok

Vriddhi and Virdhan are going with their family to Gangtok from Patuk.

They take a bus to reach Gangtok. They get down at SNT bus station in Gangtok and take a taxi to Bulbuley. After 2 hours, they go sightseeing to Hanuman tok and Ganesh tok by taxi.

They have lunch at a local hotel in MG Marg. In the afternoon, they visit Children Park and Khangchendzonga Shopping Complex near MG Marg.

In the evening they take a bus to go back to their home at Patuk.

Now look at the distance between these places (for kilometres we write km)

a. SNT bus station → Deorali Taxi Stand: 2km

b. MG marg → SNT bus station: 500m

c. CRH manipal → STNM, Hospital: 4km

d. Ranipool → Tadong bazar: 6km

Now find from the map

1. Which is farther from MG Marg:

   a. SNT bus station or Deorali Taxi Stand?

2. Which of these is nearer to Ranipool:

   a. STNM Hospital or CRH, Manipal?
   b. Children Park or Paljor Stadium?

3. Which is closer to the Khangchendzonga Shopping Complex:

   a. Hanuman Tok or Big Bazaar?

Find out the distance from your school to home.

Teacher's Note: Distance could be in bigger units, kilometers. Encourage children to tell about different units of length, height and distance they have come across.

6. Playing with Balance

S9J3R2

Gundruk and Kalo Dal

Amma! I want to have gundruk soup.

We do not have gundruk. But we have plenty of kalo dal.

Oh! Nice! I have gundruk and you have kalo dal. I like kalo dal very much. Let us exchange.

Fine! I will give you 1kg of kalo dal and you can give me 1kg of gundruk in return.

Oh! 1kg of gundruk needs a bigger bag than 1kg of kalo dal!

Note that 'kg' is the short form of kilogram

1. Which is heavier?

   a. 1kg gundruk or 1kg kalo dal?
   b. 1kg hawa meethai or 1kg laddu?
   c. 1kg cotton or 1kg cardamom?
   d. 1 mana rice or 1 muri rice?

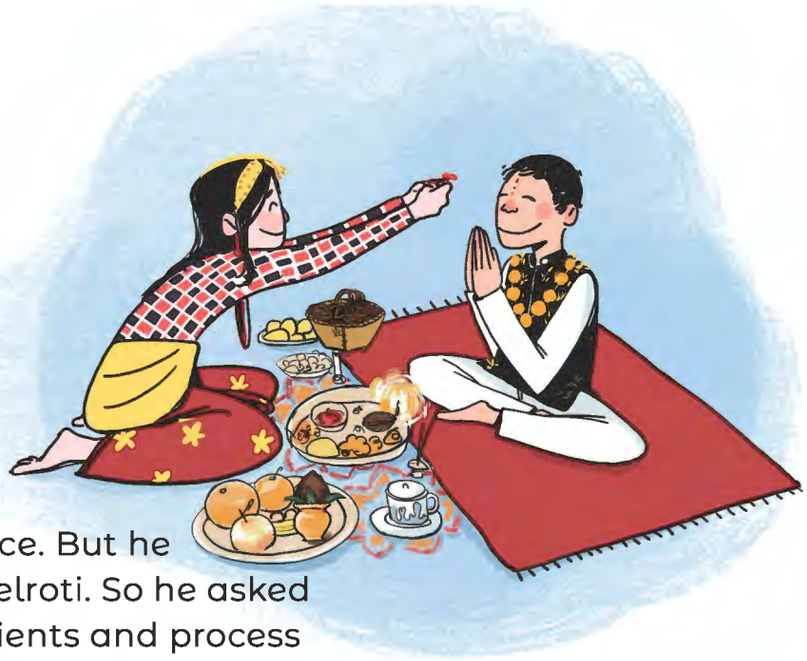
Mintu and Pintu on Chakachuli (See-Saw)

Mintu is the younger brother of Pintu. Pintu is taller than his brother Mintu. One day they went to the playground to play Chakachuli (see-saw). They sat on the see-saw and started playing. Pintu went up in the air and Mintu went down.

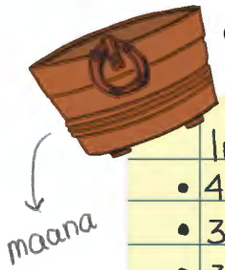
1. Can you guess why Pintu went up?
2. Can Mintu bring Pintu down? How?
3. Come let us guess which will weigh more.

   a. 2 metre long paper strip or 1 metre long iron rod?
   b. 5 balloons or a cricket ball?
   c. 1 metre long iron rod or 2 metre long iron rod?
   d. 7 cats or a dog?

Selroti



Rohan wished to make and serve selroti and aludum to his friends during Laxmipuja and also to his sister Rewati during Bhaitika. So he decided to make 2 dalo selroti in advance. But he did not know how to make selroti. So he asked his mother about the ingredients and process of making selroti. This is what he noted down-



Ingredients	Method
• 4 maana of water	• Wash and soak rice overnight.
• 3 Litre of roti masala	• Grind this rice to make batter.
• 300 gram of curd	• Add ghee, sugar, curd, milk, roti masala, baking powder to batter.
• 500 gram of milk	• Add water to the batter to make it fine and greasy (lesilo).
• 500 gram of baking powder	• Continuously stir the mixture.
• 250 ml of wheat flour	• Cover and leave it for 1-2 hours.
• 100 ml of sugar	• Heat cooking oil in a pan.
• 2 teaspoons of rice	• Put batter in the hot oil forming rings and fry till golden.
• 2 Litre of ghee	
• 2 packets (50 gram each) of vegetable oil.	

1. **But Rohan feels that there is something wrong in the quantities of the ingredients he listed. Help him write the right quantities next to the ingredients:**

a. 4 maana rice

b. 500 grams wheat flour

c. _____ water

d. _____ baking powder

e. _____ sugar

f. _____ vegetable oil

g. _____ selroti masala

h. _____ ghee

i. _____ curd (dahi)

j. _____ milk

How heavy:

1. Guess your own weight and write in the circle:

2. Name some of your friends and guess their weights.

friend				
weight				

a. Weight of _____ is more than me.

b. Weight of _____ is less than me.

c. Weight of _____ is almost the same as me.

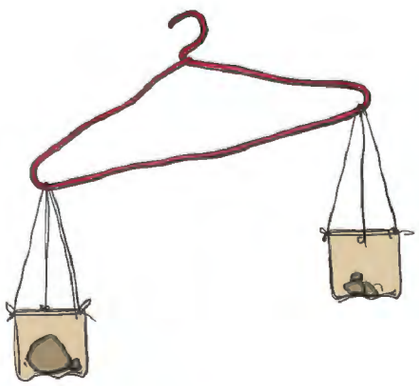
3. Find out from your parents how much you weighed at birth.

4. Guess and write name of objects which you

Can lift easily	Cannot lift easily

Hanger Balance

I am a hanger balance. I usually compare the weight of small objects at home and school. Anybody can prepare me easily from coat hanger. I am very delicate, so use me carefully.



How to make hanger balance:

Step 1 - Take two used water bottles of the same size.

Step 2 - Cut them just below the neck.

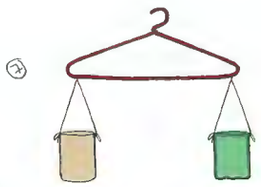
Step 3 - Use a hole punch to make holes close to the cut ends of the bottles.

Step 4 - Cut 2 pieces of twine (thread) that are each around 30cm long.

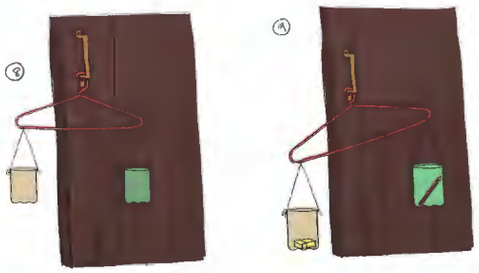
Step 5 - Tie the ends of the twine through the holes in the bottles

Step 6 - Find a notched clothes hanger.

Step 7 - Hang the bottles on the clothes hanger using the twine handles.



Step 8 - Hang it on a door knob.



Step 9 - Put the different objects (to be compared) in the bottles.

1. Find different objects around you and compare their weights.

a. Weight of _____ is less than _____ .

b. Weight of _____ is greater than _____ .

c. Weight of _____ and _____ are equal.

Find the objects which weigh:
(You can use your hanger balance for this)

1. More than filled water bottle.

   a. _____ b. _____ c. _____

2. Less than empty water bottle.

   a. _____ b. _____ c. _____

3. More than empty water bottle but less than filled water bottle.

   a. _____ b. _____ c. _____

Let us play:

Dear children! Let us play a guessing game today. Ramana! Please pick any one object from the basket.

Oh! It's a rubber ball.

Ramana

Now children! Come one by one and pick any one object which weighs more than rubber ball and another object which weighs less than rubber ball.

Tenzing

I picked squash and cricket ball.

Rahul

I picked chalk and iron rod.

Kanta

I have sharpener and mango in my hand.

Lakpa

I picked maize grain and paper strip.

Let us see! How many of you come with correct guesses.

Sorry! Tenzing. The items picked by you are heavier than a rubber ball and Lakpa, both the items picked by you are less than a rubber ball. Better luck next time!

Ouch!

Rahul and Kanta made correct guesses as weight of chalk and sharpener is less than rubber ball and weight of iron rod and mango is more than rubber ball. Congratulations!

Hurray I am the winner.

My guess is correct! I am also a winner.

Teacher's Note: Teacher may provide ample objects for the game and may generate games similar to above and also guide and encourage children to make balance using their own innovative ideas.

Shopping Time:

Ramana's father and Rohan's mother went for shopping. Ramana has five members in her family whereas Rohan has four members.

1. Who do you think will buy more rice? Why?

2. Ramana's father bought 2kg mango, 1kg salt, 2kg onion and 20kg rice, and Rohan's mother bought 2kg tomato, 2kg sugar and 16kg rice.

a. How much more rice did Ramana's father buy?

b. Find the total weight Ramana's father carried.

c. Who had to carry more weight and by how much?

Chewang and Shaggy

Weight of Chewang's dog Shaggy was 23kg. Because of eating spoiled food Shaggy fell ill. Chewang tried to treat Shaggy at home but it did not work.

So, after three days she took Shaggy to a doctor. The weight of Shaggy was found to be 19kg.

Two days after the treatment, weight of Shaggy was 21kg.

a. How much weight did Shaggy lose after three days of illness?

b. How much weight did Shaggy recover after two days of doctor's treatment?

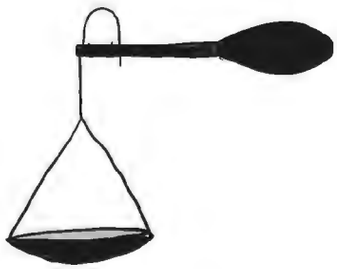
Lidey Sher

Bhaichung went to Traditional museum at Lower Aho, East Sikkim with his father and saw weight measuring scale as shown below:

Oh! It's very interesting. What is this Papa?

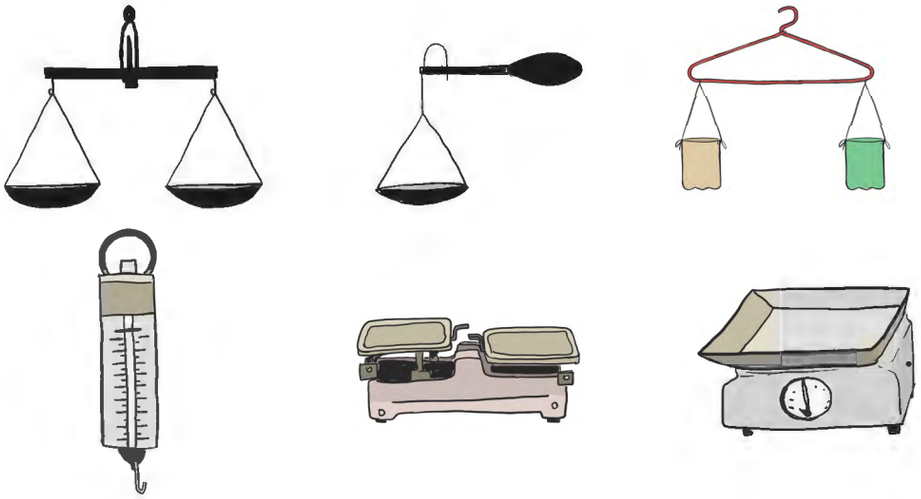
It's Leedey Sher! Old weight measuring scale specially used in Sikkim.

But it has only one pan! I wonder how they measure weights using this.



Leedey Sher consists of a single pan with a wooden pointer on the top. Pan is usually hung on one side (foot) of the pointer in such a way that pointer is free to move up and down. In the foot of the pointer different marks of ek (one) sher, adha (half) sher, pawa (quarter) sher (1 sher = 933g) were given depending upon the need for measurement. In order to measure 1 sher, object is placed in the pan and string is tied on the ek sher mark and pointer is allowed to suspend freely holding string that is attached to pointer on hand. As soon as the weight on the pan increases pointer start moving upward and when pointer become horizontal to the ground, the weight in the pan was considered to be ek sher. Similarly measurement of adha sher, sawa sher was done using lidey sher.

1. Have you seen any of these balances?



2. Make a trip to your nearest vegetable shop, grocery shop and hard ware shop. Have a look at the weights they use. Find out:

   a. Who uses the biggest weight?

   b. Who uses the smallest weight?

I wonder how to find the weight of my pencil box! It is less than 1kg. Guess how many pencil box will make 1kg.

Guess:

1. Which of the following things weighs more than 1kg?

2. Which ones will weigh less than 1kg?

Activity:

1. Make a list of groceries bought at your home. Find out how much of each thing is bought at one time.

Name of the item	How much is bought

2. Compare your list with your friends list.

Clever Shyam

There are 5 members in Rita's family. They decided to make dhakane and bet ko tusa (bamboo shoot) with churpi for the dar feast during Hartalika teej festival. Shyam also called his elder daughter Lata to join in the dar feast.

We already have milk, ghee, sugar and rice at home.

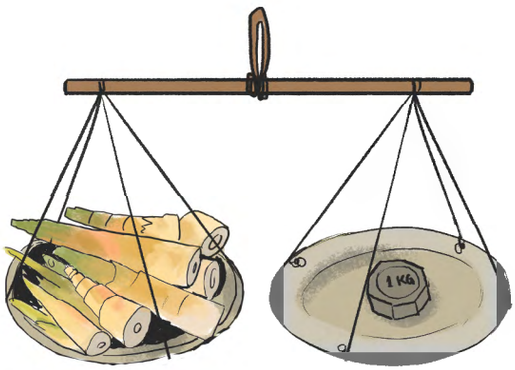
Rita made a list of other items and went for shopping with her father Shyam. They went to vegetable/grocery shop to buy bet ko tusa and churpi.

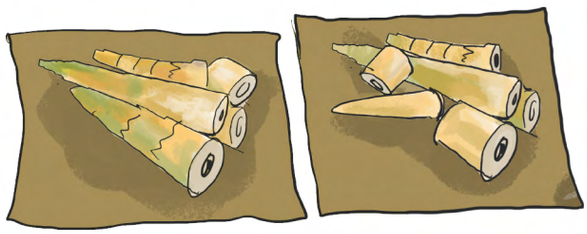
Give me half kg bet ko tusa (bamboo shoot).

But I have only 1kg weight with me.

No problem, weigh 1kg tusa and divide it into two equal parts. Each part is equal to half kg.

Which means half kg and half kg is equal to 1kg.





Now we need 1 pawa churpi (cheese).

Father how much is pawa?

It is equal to 250g.

Note that 'g' is the short form of gram.

Is it possible to weigh 250g using 1kg weight?

Sure, divide half kg into two equal parts. Each part will have 250g.

Oh! 250g + 250g is equal to half kg.

Exactly! 1kg is equal to 250g + 250g + 250g + 250g

1 kg = _____ g

They also buy 100g cardamom and 50g masala.

a. How much weight in grams they buy in total?
b. How much more they need to buy to make 1kg?

Match the following to find out the best estimate for each object:

Pencil	3kg
School Bag	500g
Balloon	10g
Mobile phone	14kg
Football	3g
LPG cylinder (empty)	200g

7. Filling and Measuring

W3H4Y1

In the dense forest, there lived in a little cottage the family of Papa Bear, Mama Bear and Baby Bear. The bear family loved lito, and Mama Bear made it every day.

In the edge of the forest lived a young girl named Simran. She loved to spend her time with the little animals, birds, butterflies and colorful flowers in the forest.

One day, as Simran was walking in the forest she lost her way. She saw the cottage and entered it. There was no one in the cottage.

Simran was sleepy and fell asleep. Bear family came back home and found no lito in the small bowl. But they found little Simran sleeping.

The sound of baby bear made Simran wake up. She got frightened. She ran to the window, jumped out and ran as fast as she could.

Circle the bowl that holds the most lito.

Making Buttermilk

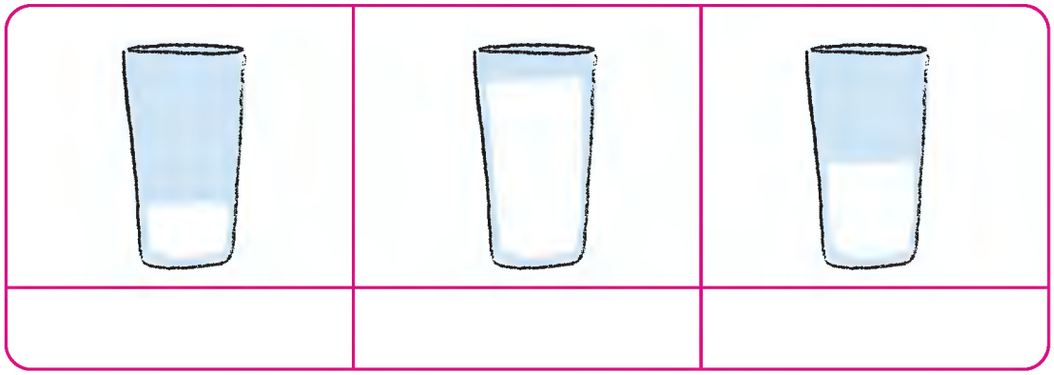
Binoy and his friends Ravi and Surbhi went to Binoy's House. Binoy's mother offered them buttermilk. They took one sip of their glasses. Here are the glasses they are yet to finish.

Now tell,

1. Who has drunk the most? _____

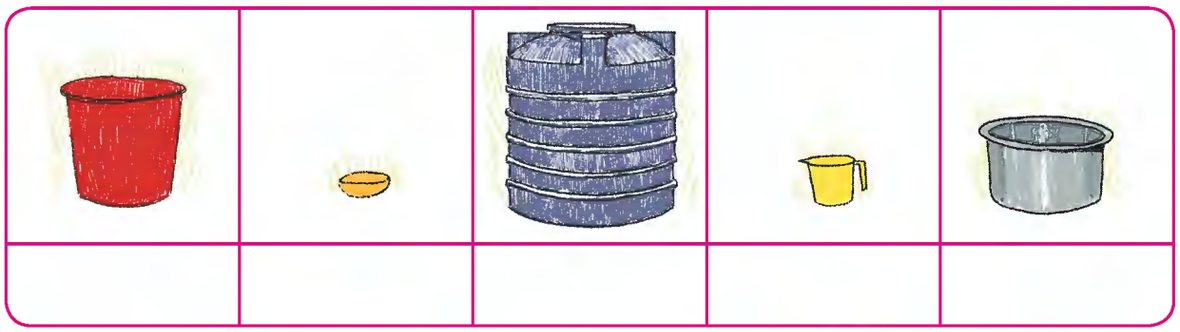
2. Who has drunk the least? _____

3. Arrange the glasses from more buttermilk to less



Binoy's Day

Arrange these containers and vessels from smallest to biggest-



How much can I hold?

Binoy has a 1 litre bottle. He fills the bottle with 3 glasses of water.

1. Binoy's bottle can hold _____
(3 times/twice/half) as much water as Binoy's glass.

Lucy's bottle fills with 1 glass of water.

2. Whose bottle can hold more water?

How many bottles?

Mother asks Lucy and Binoy to fill vessels with water. Lucy had to fill her bottle 12 times from the tap. But Binoy had to fill his bottle only 4 times.

Why did Lucy go to fill her bottle more times than Binoy?

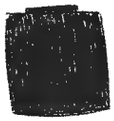
Activity

1. Get a 1 litre bottle and collect different size vessels at your home. Use 1 litre bottle to check which of these holds more than a litre and which one holds less than a litre.

2. Collect different vessels at your home. Find out how much water they can hold.

Match the right pairs

Less than half litre



Half litre

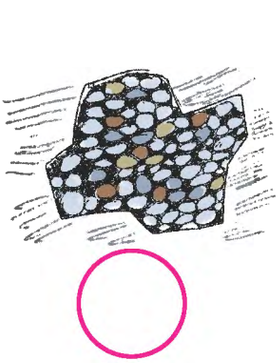
About 5 litres

About 20 litres

About 1000 litres

Filling potholes

In a small village Chadey near Makha, there are some potholes in the road. Children want to fill them with pebbles before the rains. Hole A gets filled with 8 mugs of pebbles; Hole B gets filled with 16 mugs of pebbles; Hole C gets filled with 12 mugs of pebbles.



1. Mark A, B, C on the right hole in the picture.

2. Which is the biggest pothole? _____

3. Which is the smallest pothole? _____

4. If buckets are used, hole A gets filled with 2 buckets.
How many buckets of pebbles are needed to fill hole B? _____

8. Tiling and Viewing

W5K7C7

Tiling and Map

Anu

See the design in the footpath it looks very beautiful.

Goma

See the design carefully; it is made up of one type of tile only.

These small pieces cover the whole surface without any gaps and overlaps.

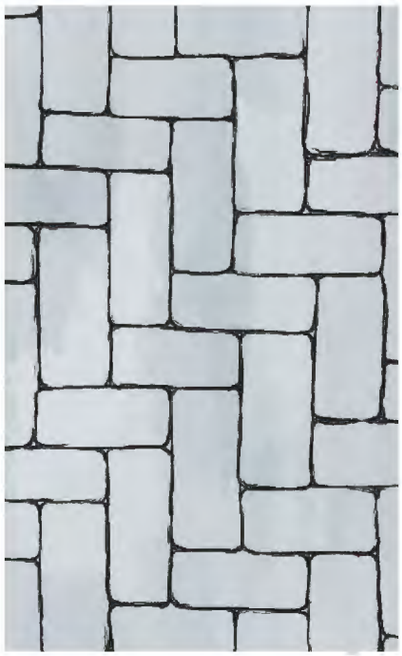
Father

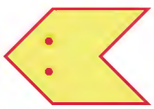
Exactly! Design made by joining small pieces with same or different shapes in this way is called tiling.

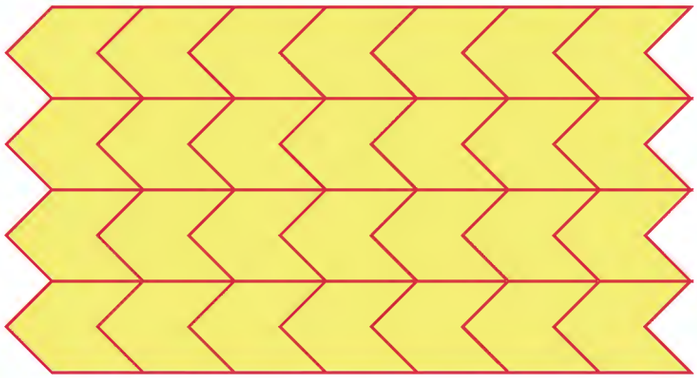
Mother

We see tiles all around us: on roofs, on floors, in courtyards, on bathroom walls. Tiles are used to cover surfaces.

1. From the below three designs which is a tiling design? Why?

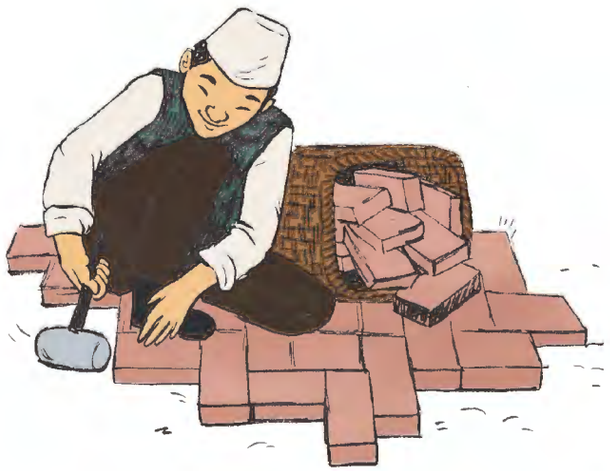


Now look at these fish shaped tiles- 

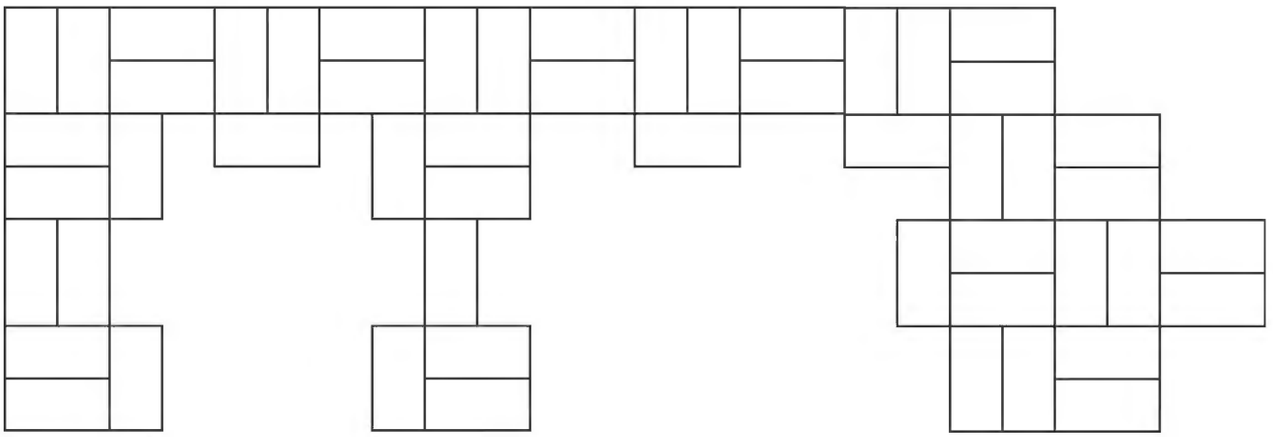


See how tiles of this shape can cover the floor completely without any gaps.

Rohan is laying bricks for the footpath.



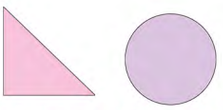
1. Help Rohan to lay bricks on the footpath.

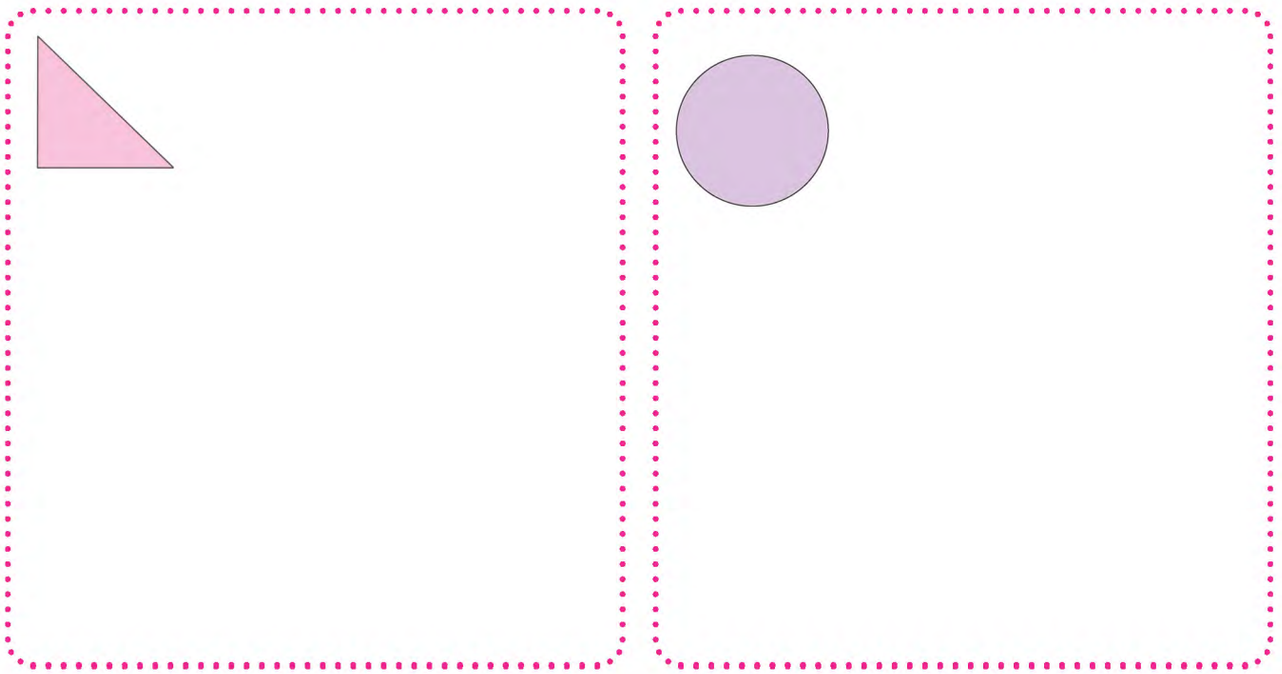


2. Can you guess why Rohan is doing this work?

3. Can Rohan put bricks like this on the above footpath without gaps and without overlaps?

Try tiling with both the bricks.



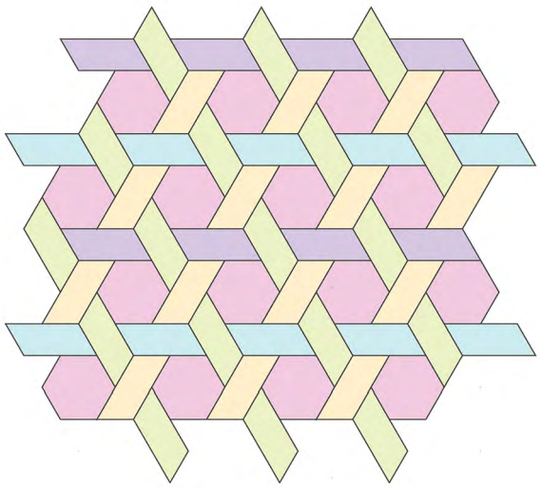


4. Find out how many mathematics textbooks of your class can cover the top surface of your teachers table without gaps and overlaps.

Rangoli with paper tiles

Rangolis are very common. We often draw them in our courtyards. Festivals like Diwali are celebrated with beautiful Rangoli Patterns. We can even make rangolis of different designs using paper tiles of different colours and shapes.

Below is a rangoli design made by joining paper tiles of different shapes and colours.



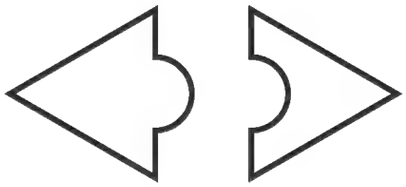
I think there are no gaps and overlaps in this design.

I can see some tiles are overlapping.

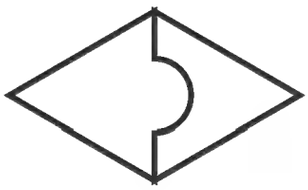
1. What do you think? Discuss with your friends.

2. How many different tiles are used in this design?

Now look at the paper tiles of these shapes-

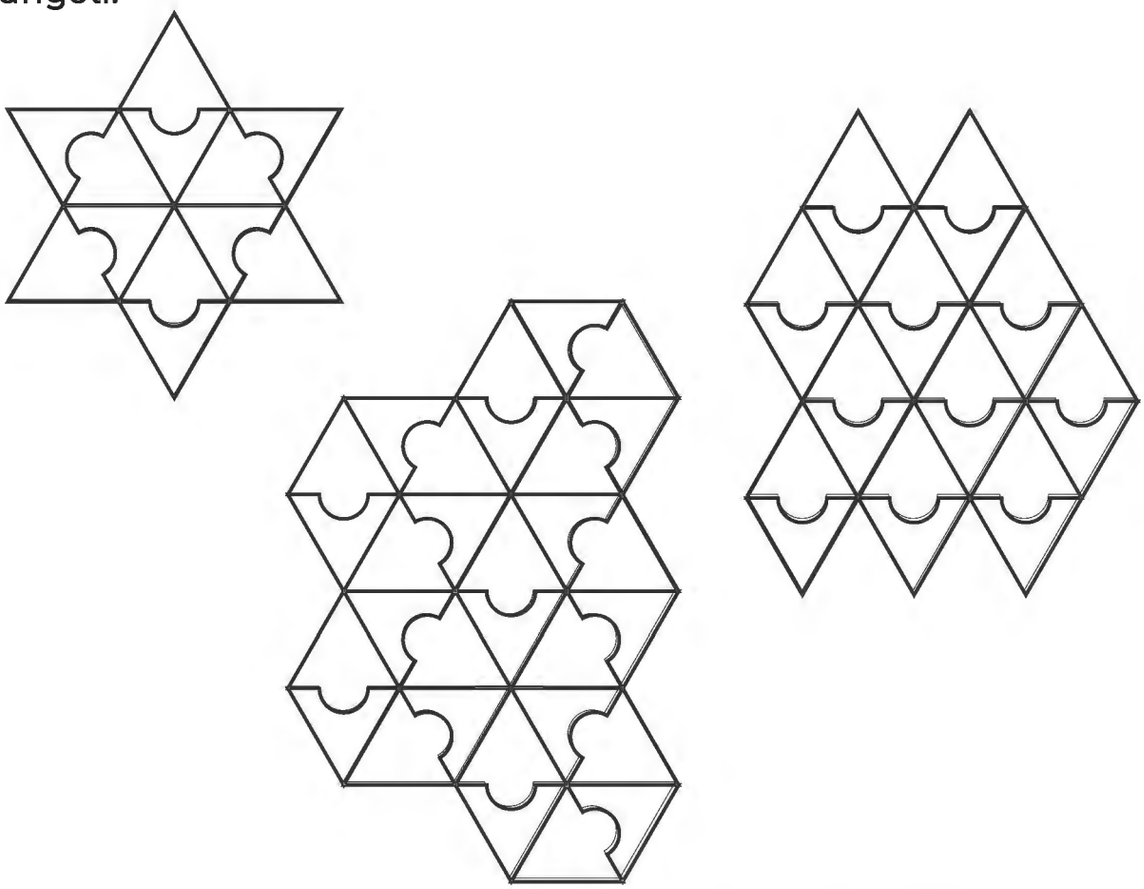


1. You can find this type of design when you join the two tiles.



Colour these paper tiles with different colours.

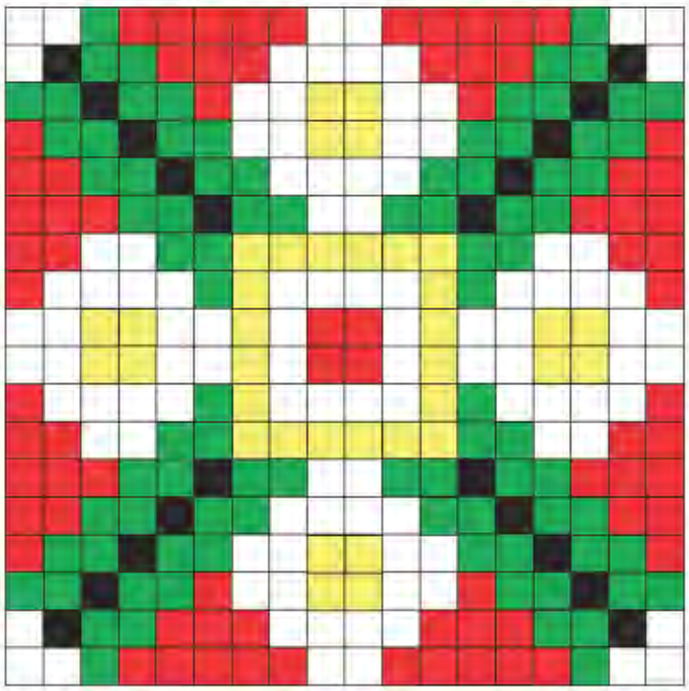
2. We can make beautiful rangoli as shown below by joining above made design one after the other. Colour your rangoli.



Sarvatobhadra

Sarvatobhadra is a beautiful design specially made during pujas and puranas. It is made on the floor or on the cardboard by mixing different colours or using colourful rice or sesame (til) seeds as shown here.

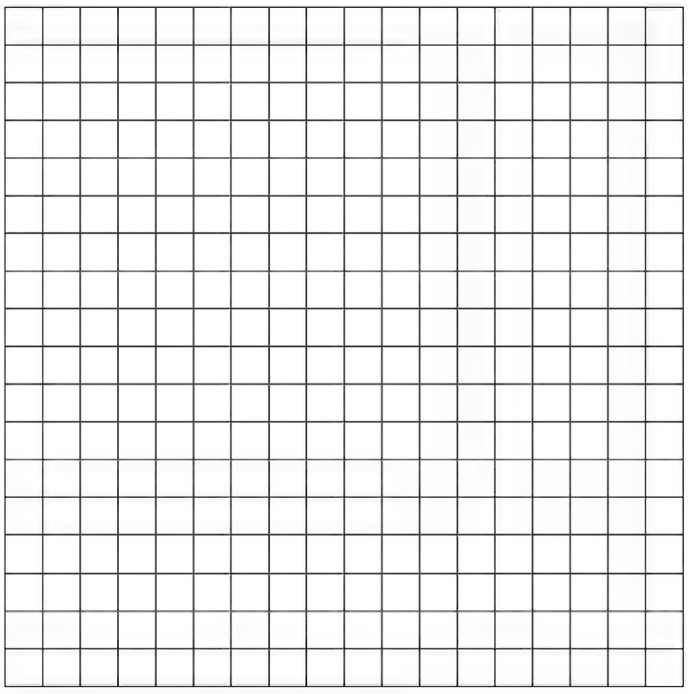
Teacher's Note: Teacher may encourage and guide students to make rangoli with paper tiles using their own innovative ideas.



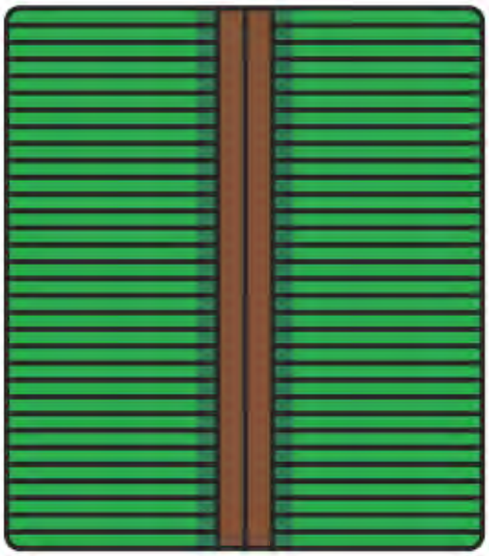
1. Do you think sharvatobhadra is a tiling design? Discuss with your friends.

2. What is the shape of the tiles used here?

3. Use different colours and make sarvatovadra in the box given below:



How does it look?



Wow! Very beautiful houses!

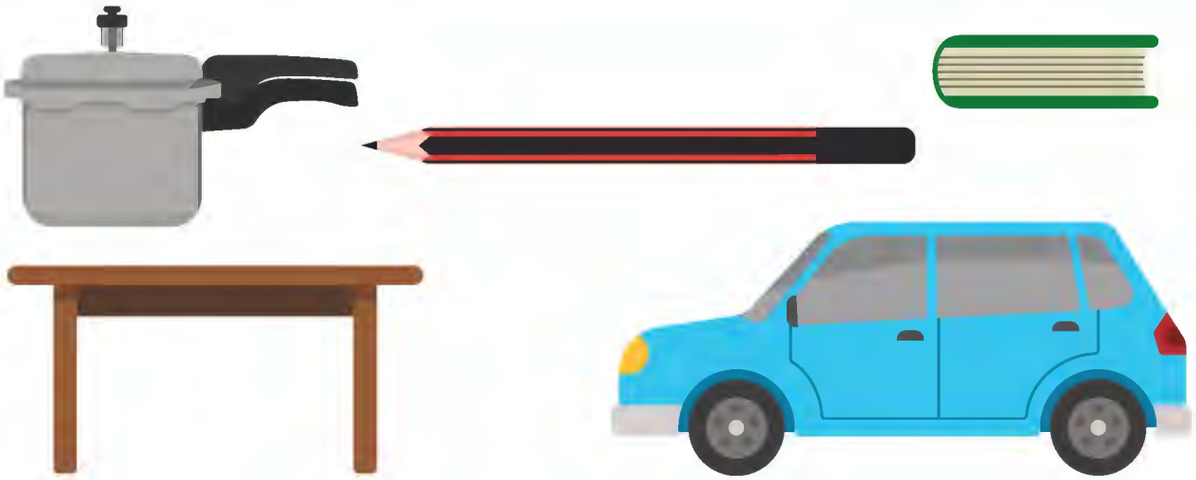
Which one is more beautiful?

I think both are the pictures of same house.

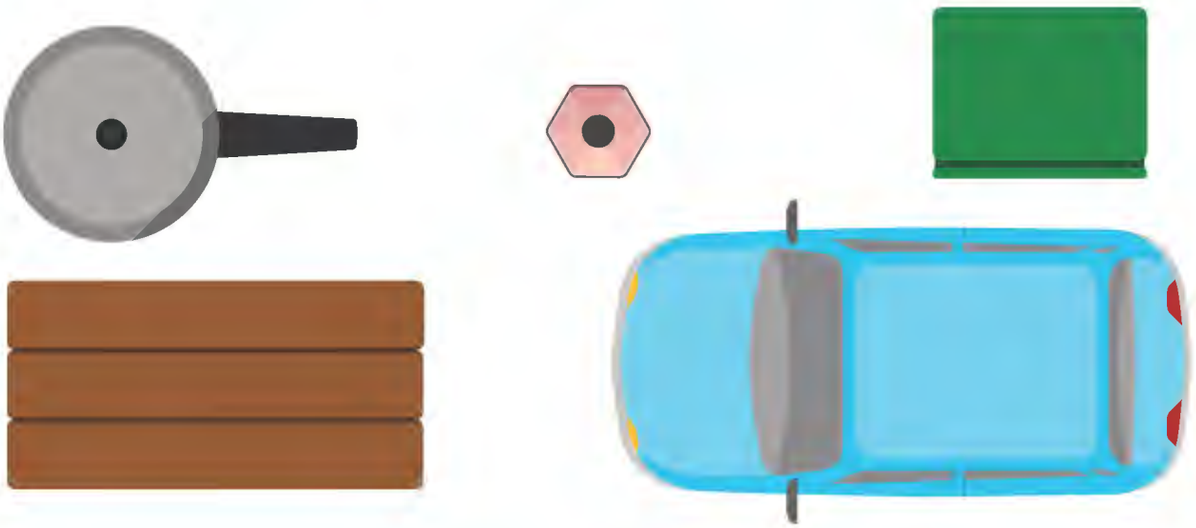
How?

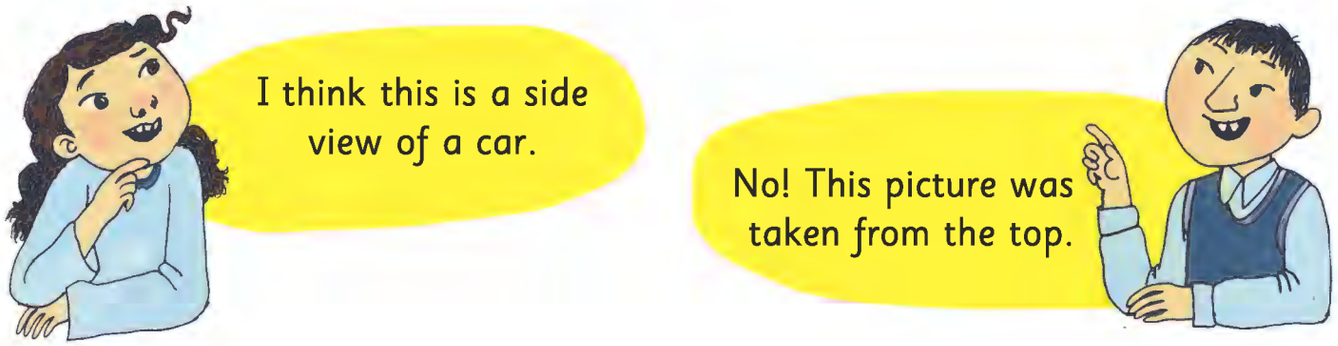
One is taken from the top and other from the side.

Some pictures are drawn below. Imagine how these things will look if seen from the top.



Will they look like this?





What do you think? Discuss.

Here are some pictures. Find out from where you have to look to see the things this way.

Activity:

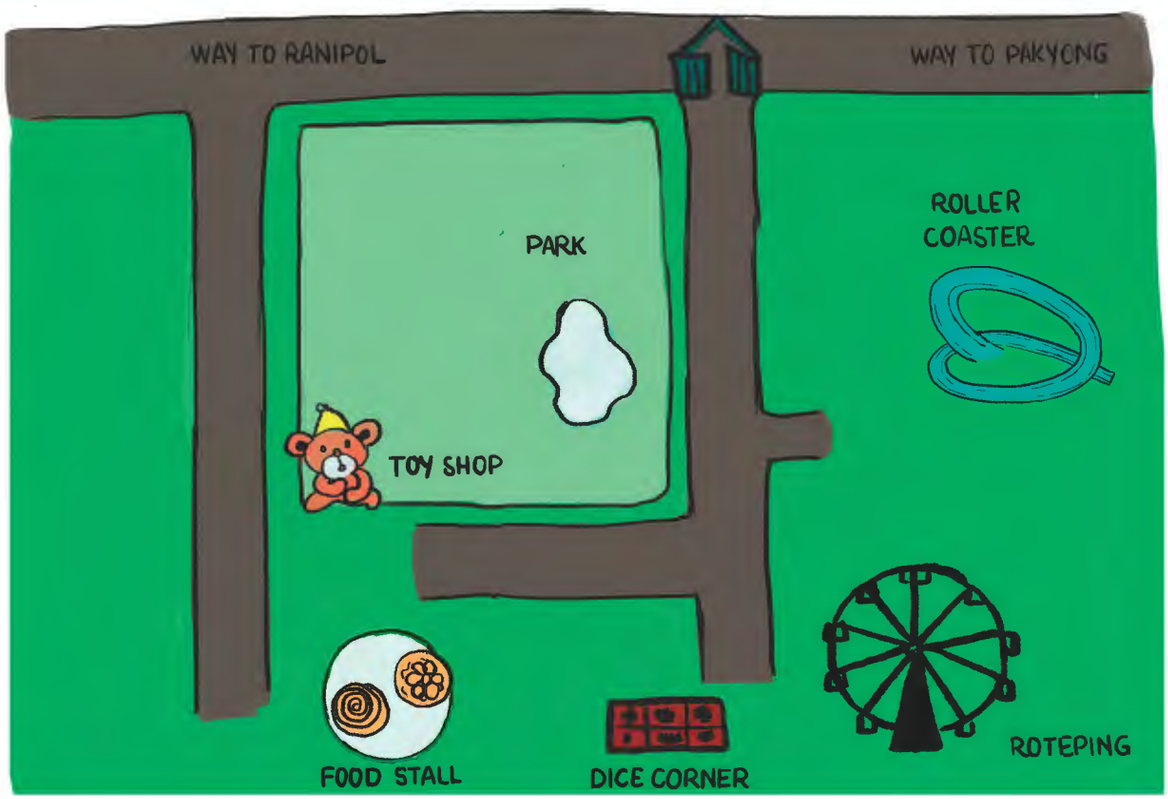
Draw top views of a few things and ask your friends to guess what they are.

Saramsa Mela

Gopal and Usha went to Saramsa mela with their father during Makar Sankranti.

Gopal, Usha and their father Rohan entered the mela from the gate, they saw green grassy park on the right side then after walking a while they took a left turn to reach roller coaster counter and rotey ping counter.

As Gopal and Usha wished to play **rotey-ping** Rohan bought two tickets for them and he decided to go to the dice counter.



1. Can you help Rohan to reach the dice counter?

2. Which place is nearest to traditional food stall?

3. If you enter the mela and go straight, where will you reach?

Gopal: Oh it is very interesting! I can see entire mela from here.

Usha: The view of mela is totally different.

Gopal: See! Our father is playing dice. He is looking very small from here.

Usha: What is that brother?

Gopal: I think that is Saramsa Garden.

Usha: But its look is different. Oh! Things look so different when you look at them from the top.

Gopal: See the birds flying in the sky they are looking quite larger from here.

Usha: I wonder! How would birds view mela from that place?

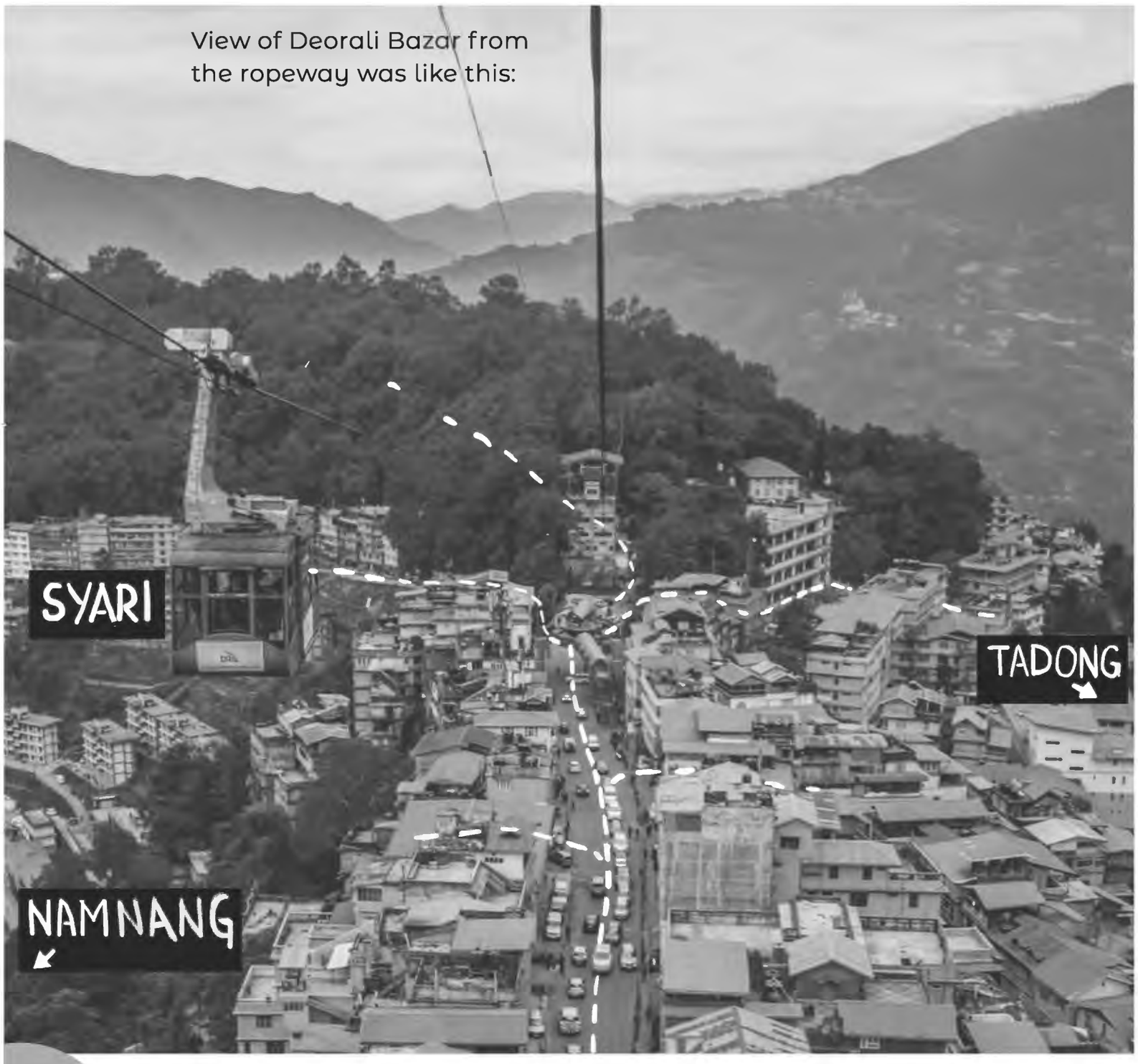
Gopal: May be everything looks like small boxes for them

Usha: Oh! I want to fly high up in the air to have more views.

Ropeway view

Dup Tshering and Sonimit went to Gangtok Bazar with their father to do shopping during Lossong festival. After shopping at Lal Bazar, they wished to take a ride on ropeway.

View of Deorali Bazar from the ropeway was like this:



Match the map and the photo

1. Some roads are in this part of the map. Look for them in the photo.

2. Look at the map and locate Chorten Gumpa in the photo.

3. Look for the butterfly flyover in the map. Can you see it in the photo?

4. If you are going Chorten Gumpa from Gangtok town by road, Deorali School road is on

_____ **(left/right)** side from you.

9. Tables and More

K1N4A5

During their winter vacation Shreya and her brother Rehan visited their kiwi orchard and helped their parents in packing kiwi fruits which they sell. Kiwi fruits are packed in three different ways, packets with 3 fruits in each, packets with 4 fruits and packets with 6 fruits.

1. Shreya made 7 packets with 4 kiwis in each.

How many fruits did she pack?

4 + 4 + 4 + 4 + 4 + 4 + 4 = 28

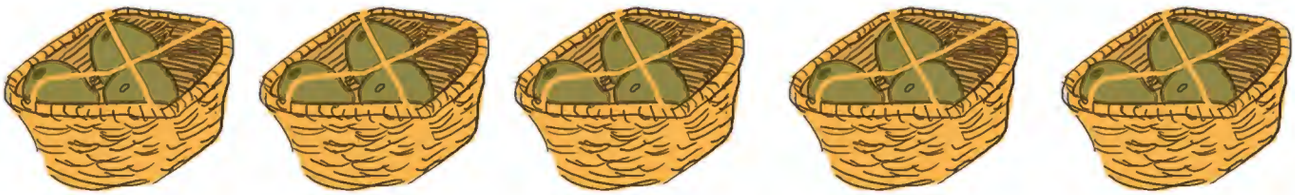
That is 4 added 7 times.

So we call it 7 times 4

and we write it as 7 × 4

So, 7 × 4 = 4 + 4 + 4 + 4 + 4 + 4 + 4 = 28

2. Rehan made 5 packets. But he packed 3 kiwis in each.



How many fruits did she pack?

3 + 3 + 3 + 3 + 3 = 15

That is 3 added 5 times.

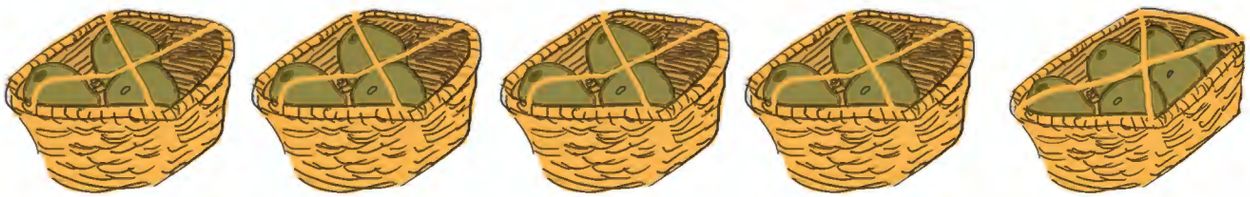
So we call it 5 times 3

and we write it as 5 × 3

So, 5 × 3 = 3 + 3 + 3 + 3 + 3 = 15

3. Shreya's father packed 5 packets. But he packed 3 kiwis each in 4 packets and 6 kiwis in 1 packet.

How many kiwis did he pack?



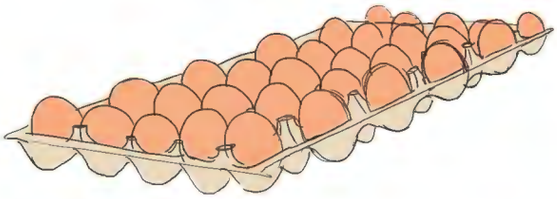
How many fruits did he pack?

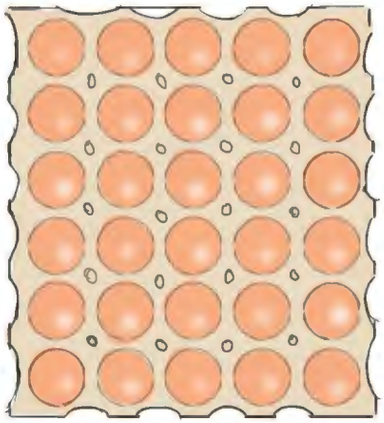
3 + 3 + 3 + 3 + 6 = 18

Can we say it as _____ times _____ ? Why?

How many times?

1. How many eggs?





◯ + ◯ + ◯ + ◯ + ◯ = ◯

That is 5 times _____ or _____ × 6 = _____

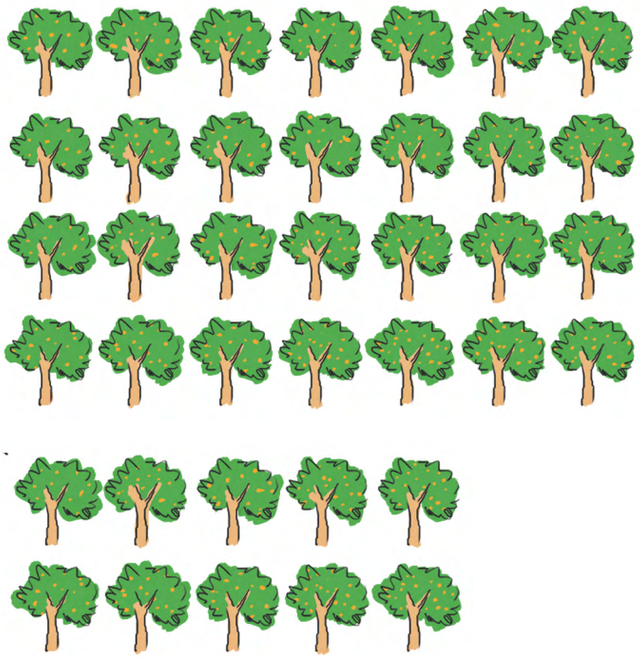
2. Do you know this animal? It is found in high hills of Sikkim. How many legs does each animal have?

How many legs do all of them have?

◯ + ◯ + ◯ = ◯

That is 3 times _____ or _____ × _____ = _____

3. How many orange trees in the orchard?



Total number of trees is

7 + 7 + 7 + 7 + 5 + 5 = 38

Can we say it as _____ times _____? Why?

4. Which one of the following can be written as
__ times __ or __ × __ ?

If yes write it as __ times __ or __ × __, if not why?

a. 5 + 5 + 5 + 5 + 5 + 5

b. 3 + 3 + 4

c. 6 + 2 + 2 + 2 + 2 + 2 + 2

d. 7 + 7 + 7 + 7 + 7

e. 8 + 8 + 1 + 8

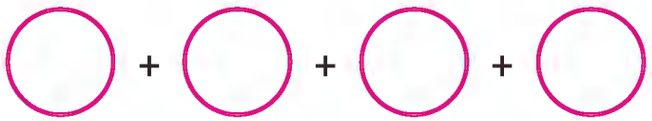
Practice time:

1. Fill in the blanks and rewrite multiplication as repeated addition:

a. 3 × 4 is 3 times 4 OR 4 + 4 + 4

b. 5 × 7 is 5 times 7 OR

c. 4 × 11 is 4 times _____ OR



d. 7 × 9 is _____ times _____ OR

2. How many times:

a. 6 + 6 + 6 + 6 + 6 = 5 × 6 = 30

b. 3 + 3 + 3 + 3 + 3 + 3 + 3 = 7 × 3 = 21

c. 7 + 7 + 7 + 7 = 4 × _____ = _____

d. 10 + 10 + 10 + 10 + 10 = _____ × _____ = _____

e. 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = _____ × 2 = _____

f. 9 + 9 + 9 + 9 + 9 + 9 = 6 × _____ = _____

3. Parbati sold 6 bunches of tulips. In each bunch she put 3 flowers. How many tulips did Parbati sell?

4. Jigdal invited 7 friends to his home. His father served 6 momos to each of his friend. How many momos did Jigdal's friends get?

4. Rupa has an organic manure shop. She sells manure. Her son Shekhar, daughter Sweta and her husband Rohan help her. They pack the manure in sacks. Each sack has 6 small packets of manure in each.

a. If Shekhar packs 4 sacks of manure, how many small packets did he pack?

b. If Sweta packs 5 sacks of manure, how many small packets did she pack?

c. Rupa and Rohan together pack 9 sacks of manure, how many small packets did they pack?

How many times 2?

1 time 2 is 2 OR 1 × 2 = 2

2 times 2 is 2 + 2 = 4 OR 2 × 2 = 4

3 times 2 is 2 + 2 + 2 = 6 OR 3 × 2 = 6

4 times 2 is 2 + 2 + 2 + 2 = 8 OR 4 × 2 = ◯

5 times 2 is 2 + 2 + 2 + 2 + 2 = 10 OR 5 × 2 = ◯

6 times 2 is ____ OR ____ × 2 = ____

7 times 2 is ____ OR ____ × 2 = 14

____ times 2 is ____ OR 8 × 2 = ____

____ times 2 is ____ OR 9 × ____ = ____

____ times 2 is ____ OR 10 × 2 = ____

How many times 3?

1 time 3 is 3 or 1 × 3 = 3 

2 times 3 is 6 or 2 × 3 = 6 

3 times 3 is 9 or 3 × 3 = 9 

4 times 3 is 12 or 4 × 3 = 12 

5 times 3 is ____ or 5 × 3 = ____ 

6 times 3 is ____ or ____ × 3 = ____ 

7 times 3 is ____ or ____ × 3 = ____ 

____ times 3 is ____ or 8 × 3 = ____ 

____ times 3 is ____ or 9 × 3 = ____ 

____ times 3 is ____ or 10 × 3 = ____ 

How many times 4?

1 time 4 is 4 or 1 × 4 = 4

2 times 4 is 8 or 2 × 4 = 8

3 times 4 is 12 or 3 × 4 = 12

4 times 4 is 16 or ___ × 4 = 16

5 times 4 is ___ or ___ × 4 = ___

6 times 4 is ___ or ___ × 4 = ___

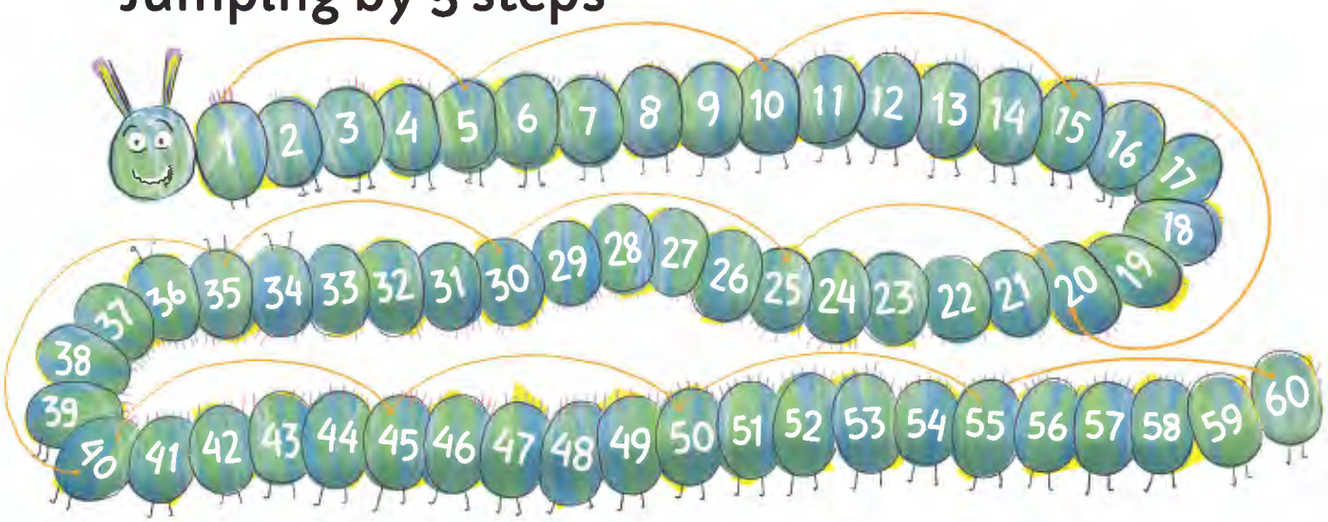
7 times 4 is ___ or ___ × 4 = ___

___ times 4 is ___ or 8 × 4 = ___

___ times 4 is ___ or 9 × 4 = ___

___ times 4 is ___ or 10 × 4 = ___

Jumping by 5 steps



a. 1 × 5 = ☐

b. 2 × 5 = ☐

c. 3 × 5 = ☐

d. 4 × 5 = ☐

e. 5 × 5 = ☐

f. 6 × 5 = ☐

g. 7 × 5 = ☐

h. 8 × 5 = ☐

i. 9 × 5 = ☐

j. 10 × 5 = ☐

1. Complete the following:

a. 2 × 4 = _____

b. 8 × 2 = _____

c. 9 × 3 = _____

d. 7 × 2 = _____

e. 9 × 4 = _____

f. 10 × 4 = _____

g. 7 × 3 = _____

h. 5 × 3 = _____

i. 5 × 6 = _____

Another look at how many times

Kishore and Nimkit visited an orchard.

The trees in this orchard are in an array. They form rows and columns.

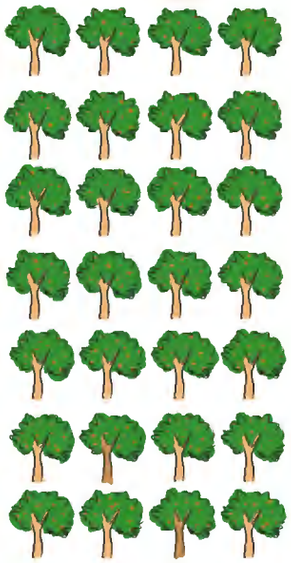
Each column has same number of trees. Each row also has same number of trees.

Kishore counted the trees as

He saw 7 rows and each row has 4 trees.

So he counted the trees as

4 + 4 + 4 + 4 + 4 + 4 + 4 = 7 × 4

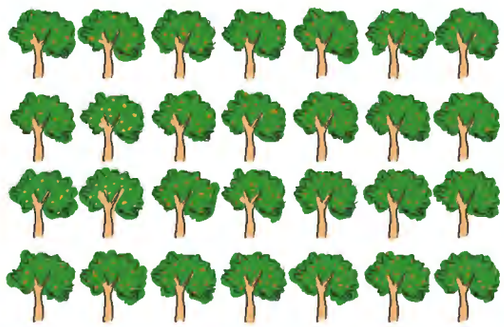


Nimkit saw them differently

She saw 4 rows with 7 trees in each.

So she counted them as

7 + 7 + 7 + 7 = 4 × 7

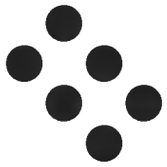


They counted the trees of the same orchard.

So are 7 × 4 and 4 × 7 same?

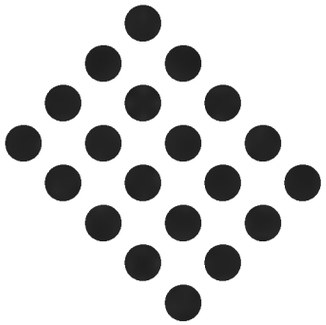
Let us see some more:

3 times 2 is 3 × 2



2 times 3 is 2 × 3

5 times 4 is 5 × 4



4 times 5 is 4 × 5

Fill in the blanks:

a. 7 × 5 = ◯ × 7

b. ◯ × 4 = ◯ × 3

c. ◯ × ◯ = 6 × 3

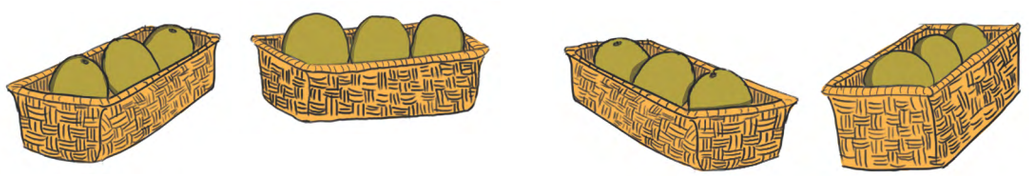
d. 2 × 9 = ◯ × ◯

e. ◯ × 6 = 6 × ◯

f. 2 × ◯ = 6 × ◯

How many?

1. How many kiwis?

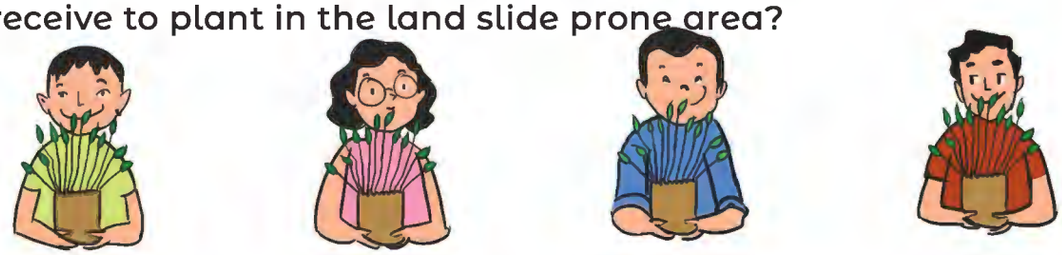


4 packets × 3 fruits = ◯

2. How many crayons?

3 × ◯ = ◯ × ◯ = ◯

3. How many saplings did Bhumika and her friends receive to plant in the land slide prone area?

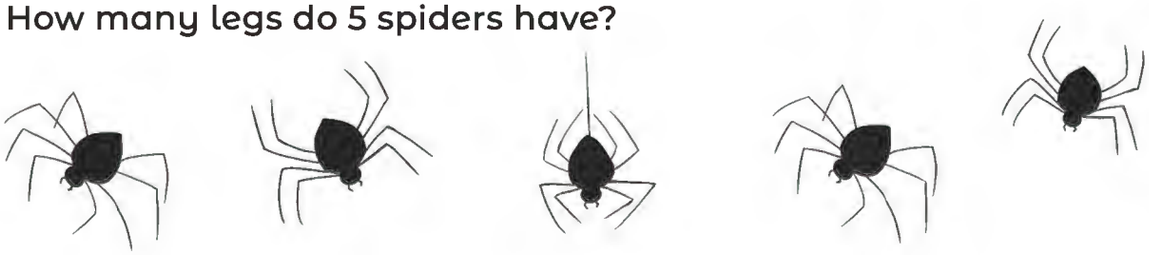


4 × ◯ = ◯ + ◯ + ◯ + ◯ = ◯

4. How many corners would 7 triangles have?

◯ × ◯ = ◯

5. How many legs do 5 spiders have?



◯ × 8 = ◯ × ◯ = ◯

6. What comes next?

a. 7, 14, 21, ____, ____, ____, ____

b. 10, 20, 30, ____, ____, ____, ____

c. 6, 12, 18, ____, ____, ____, ____

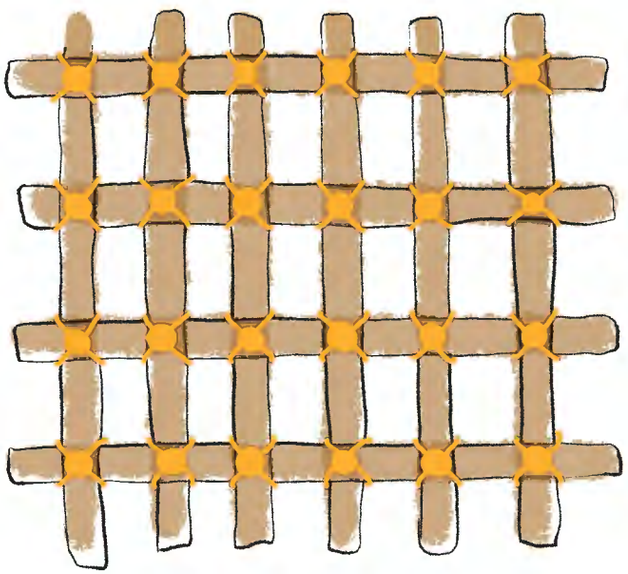
d. 8, 16, 24, ____, ____, ____, ____

e. 20, 40, 60, ____, ____, ____, ____

f. 9, 18, 27, ____, ____, ____, ____

Knitting a net with bamboo strips:

She arranged the strips like this-



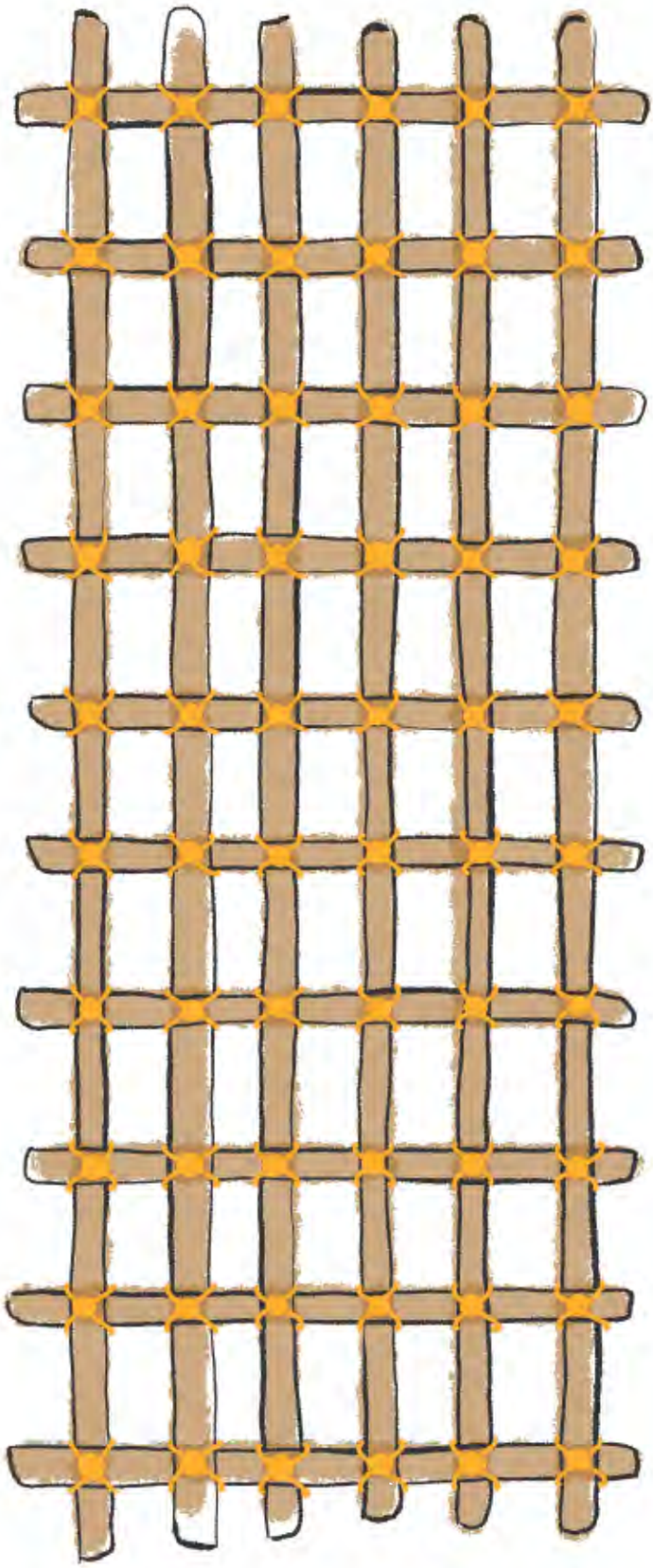
1 × 6 = 6

2 × 6 = 12

3 × 6 = 18

4 × 6 = 24

Then she counts how many knots she ties -



1 × 6 = ◯

2 × 6 = ◯

3 × 6 = ◯

4 × 6 = ◯

5 × 6 = 30

6 × 6 = ◯

7 × 6 = ◯

8 × 6 = ◯

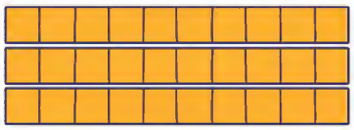
9 × 6 = ◯

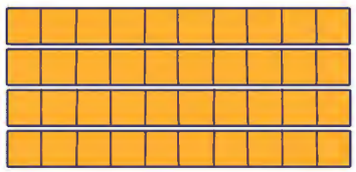
10 × 6 = ◯

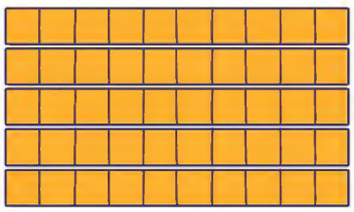
Times 10 table:

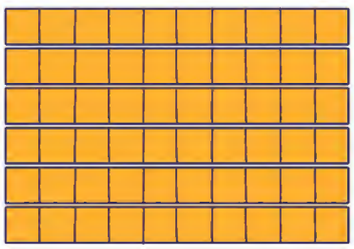
1 time 10 is  $1 \times 10 = 10$

2 times 10 is  $2 \times 10 = 20$

3 times 10 is  $3 \times 10 = 30$

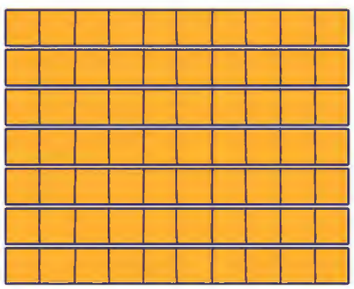
4 times 10 is  $4 \times 10 =$ ____

5 times 10 is  $5 \times 10 =$ ____



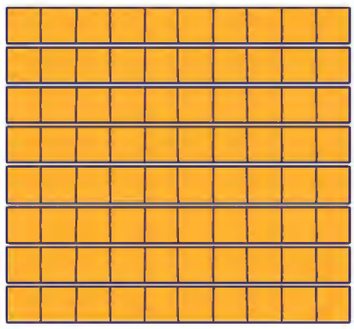
____ $\times 10 = 60$

6 times 10 is



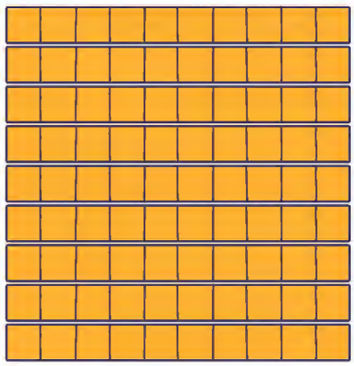
____ $\times 10 = 70$

____ times 10 is



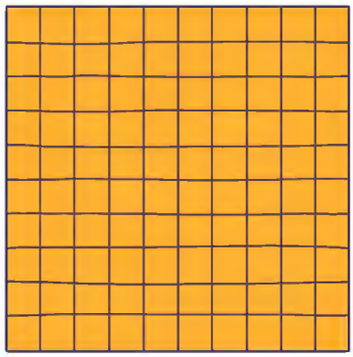
$8 \times 10 =$ ____

____ times 10 is



____ times 10 is

$9 \times \_\_\_\_ = \_\_\_\_$

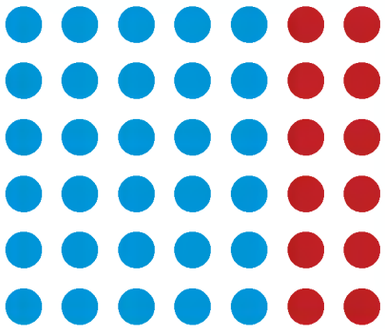


____ times 10 is

$10 \times 4 = \_\_\_\_$

Adding arrays in two ways:

This is 6 rows of 7 dots each.
So total 6 × 7 dots.



The blue dots are 6 × 5 = 30
and the red dots are 6 × 2 = 12.
So total 30 + 12 = 42 dots.

That is also $\boxed{6 \times 5} + \boxed{6 \times 2}$

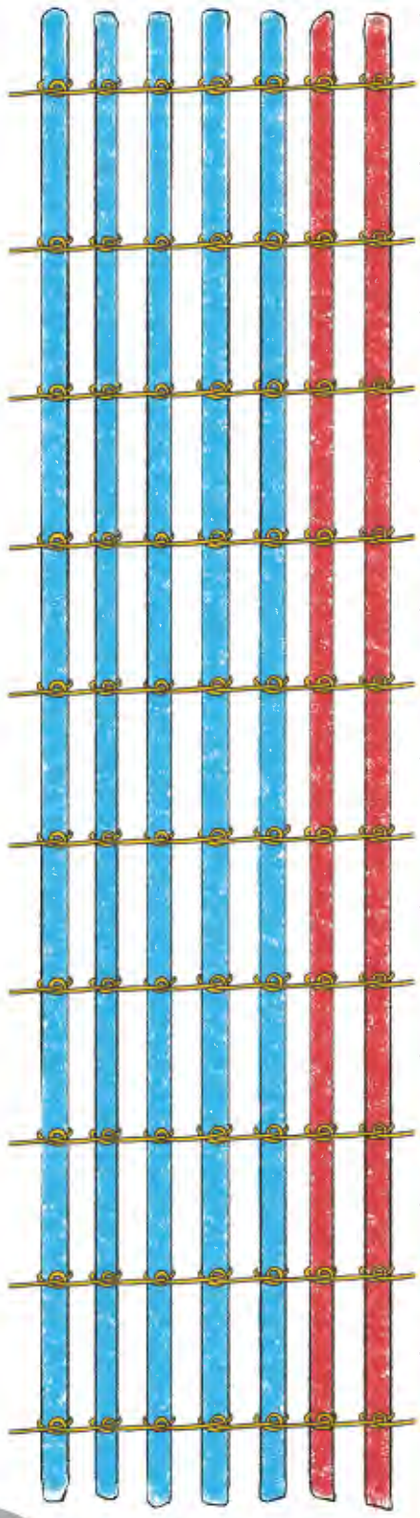
And 7 = 5 + 2. So $6 \times 7 = 6 \times \boxed{5 + 2} = 6 \times 5 + 6 \times 2$

Now we can make the table of 7
with the tables of 5 and 2 !

You know we have been multiplying and
these tables are called multiplication tables.

Making new tables

Making the multiplication table of 7 using those of 5 and 2:



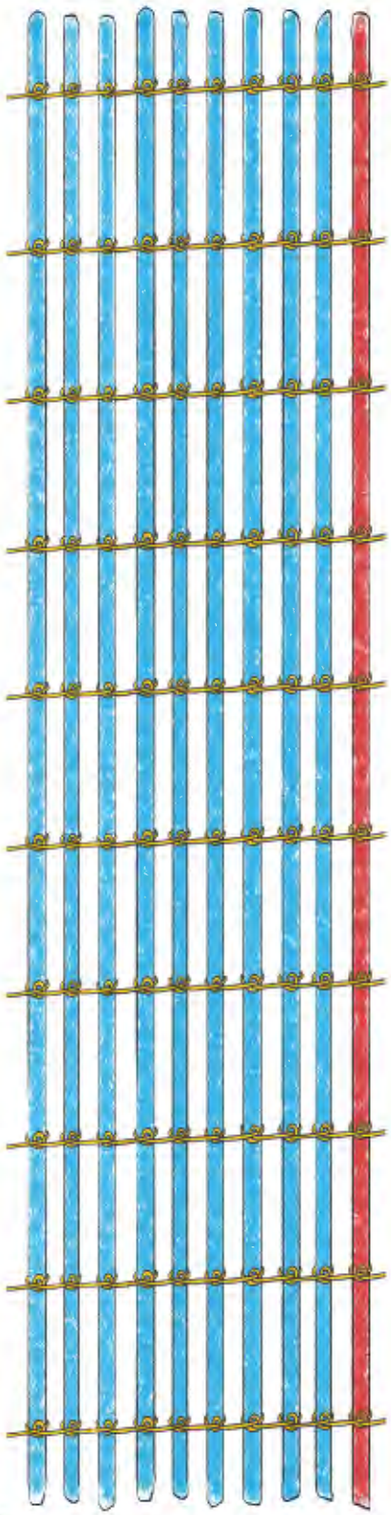
Knots on blue lines	Knots on red lines
1 × 5 = 5	1 × 2 = 2
2 × 5 = 10	2 × 2 = 4
3 × 5 = 15	3 × 2 = ____
4 × 5 = ____	4 × 2 = ____
5 × 5 = ____	5 × 2 = 10
6 × 5 = ____	6 × 2 = ____
____ × 5 = ____	7 × 2 = ____
____ × 5 = ____	8 × ____ = ____
____ × 5 = ____	9 × ____ = ____
____ × 5 = ____	10 × 2 = ____

because 7 = 5 + 2

Knots on all lines

1	×	7	=	5	+	2	=	7
2	×	7	=	10	+	4	=	14
3	×	7	=	15	+	6	=	☐
4	×	☐	=	20	+	☐	=	☐
5	×	☐	=	25	+	☐	=	35
6	×	☐	=	☐	+	12	=	☐
☐	×	☐	=	☐	+	☐	=	☐
☐	×	7	=	☐	+	16	=	56
☐	×	7	=	45	+	☐	=	☐
☐	×	7	=	☐	+	20	=	☐

Making the multiplication table of 9 using those of 10 and 1:



Knots on all lines	Knots on red lines
1 × 10 = 10	1 × 1 = 1
2 × 10 = 20	2 × 1 = 2
3 × 10 = ____	3 × 1 = 3
4 × 10 = ____	4 × 1 = ____
5 × 10 = ____	5 × 1 = ____
____ × 10 = ____	6 × 1 = ____
____ × 10 = 70	7 × 1 = ____
____ × 10 = 80	8 × 1 = ____
____ × 10 = ____	9 × 1 = ____
____ × 10 = ____	10 × 1 = ____

because 9 = 10 – 1

Knots on blue lines

1 × 9 = 10 – 1 = 9

2 × 9 = 20 – 2 = 18

3 × 9 = 30 – 3 = 27

4 × 9 = 40 – 4 = ☐

5 × 9 = 50 – 5 = ☐

6 × 9 = 60 – ☐ = ☐

☐ × 9 = 70 – ☐ = ☐

☐ × 9 = ☐ – 8 = 72

☐ × 9 = ☐ – 9 = ☐

☐ × 9 = 10 – ☐ = ☐

1. Can you make table of 7 using the tables of 3 and 4?

Table of 3	Table of 4	Table of 7
2 x 3 = 6	2 x 4 = 8	2 x 7 = 6 + 8 = 14

2. Can you make table of 8 using tables of 10 and 2?

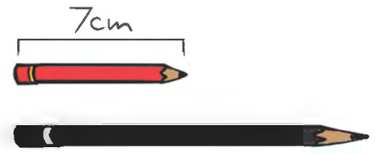
Table of 10	Table of 2	Table of 8
2 x 10 = 20	2 x 2 = 4	2 x 8 = 20 - 4 = 16

Try these:

1.

4 oranges cost ₹ _____

2. Black pencil is 2 times as long as the red one.
Red pencil is 7cm long.



Black pencil is 2 × _____ = _____ + _____ = _____ cm long

3. Rohan and his family knit 7 small baskets from bamboo strips in a day. How many baskets would they knit in 8 days?

4. Jigdal sold 1 kg of raw papaya for ₹11. He sold 6 kg of papaya? How much money did he earn?

Multiplying Bigger Numbers:

Remember that a pira is made from 20 plastics wrappers and a basket made from 30 wrappers (Class 2).

How many wrappers would you need to make –

2 piras: $2 \times 20 = 20 + 20 = 40$

3 piras: $3 \times 20 = 20 + 20 + 20 = 60$

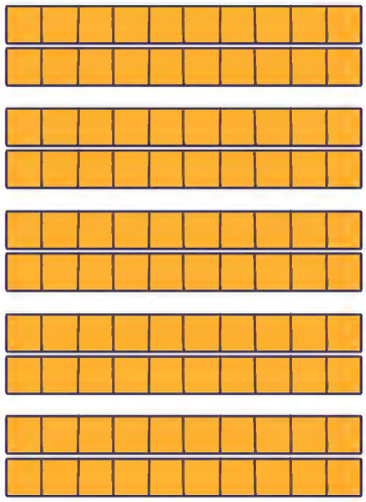
4 piras: $4 \times 20 = 20 + 20 + 20 + 20 = 80$

Hey! This looks like the table of 2 with an extra 0 behind them!

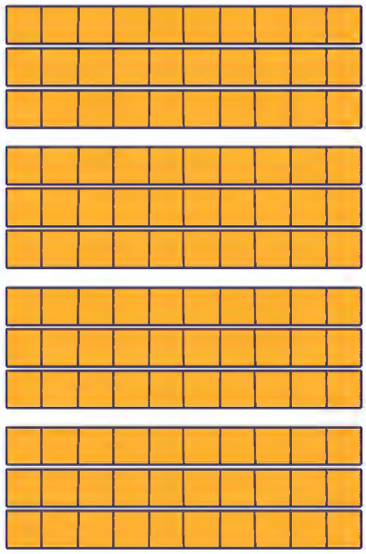
Right! Well 20 is 2 tens or 2 bundles of 10 wrappers each.
So $3 \times 20 = 3 \times \boxed{2 \times 10}$

And that is $\boxed{3 \times 2} \times 10 = 6 \times 10$ or 6 bundles.
So the 0 comes for the bundle.

5 × 20 is
5 × 2 tens = 10 tens = 100



4 × 30 is
4 × 3 tens = 12 tens = 120



Now find out:

a. 6 × 20 = ☐

b. 7 × 20 = ☐

c. 9 × 20 = ☐

d. 2 × 30 = ☐

e. 5 × 30 = ☐

f. 8 × 30 = ☐

g. 3 × 70 = ☐

h. 4 × 60 = ☐

i. 6 × 90 = ☐

Let us look at this

1. Ekta and her parents wanted to help people who have no one to look after them. During the Dasain festival, they decided to save money to feed people instead of spending on new clothes or special food. Each day they saved money for 4 people. If the festival is for 15 days, how many people can they feed?

This is 15 × 4 that is 15 rows or days of 4 people each.

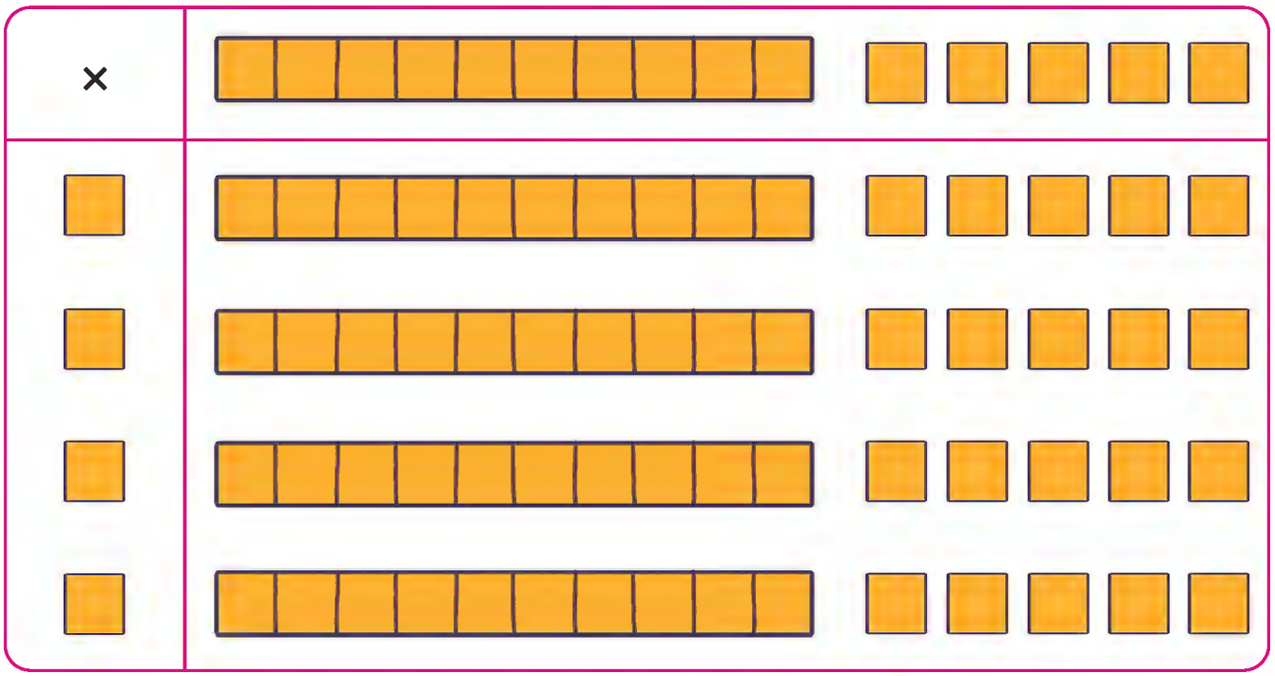
Or 4 × 15. Then each column is each day of Dasain.

Days

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

So it is more than 4 × 10 = 40 but less than 4 × 20 = 80. So it is between 40 and 80. But exactly, how many?

We can think of the 1st ten days as a bundle. Then each row is a ten and 5 ones



This can be written as

×	10	5
4	4 × 10 = 40	4 × 5 = 20

Or

×	10	5
4	40	20

Yes! So the total is 40 + 20 = 60.
And it is between 40 and 80 !

Try These

a. 14 × 8

×	10	4
8		

b. 3 × 46

×	40	
3		

c. 6 × 85

×		5
6		

d. 25 × 7 = 7 × ____

×		

e. 19 × 4 = 4 × ____

×		

I can do 19 × 4 in another way.

How?

19 = 20 – 1. So?

So 19 × 4 = 4 × 19 = 4 × $\boxed{20 - 1}$ = 4 × 20 – 4 × 1 = 80 – 4 = 76

Yes!

This is better than 19 = 10 + 9 or 40 + 36 = 76 !

Just like we got the table of 9
using those of 10 and 1

Now find out:

a. 29 × 3 b. 38 × 5 c. 79 × 6

Practice time:

1. Richa and her friends help at 5 adult literacy centres. At every centre they help 24 adults. How many adults do they help?
2. Phurmit practices boxing for 4 hours a day. How many hours does she practice in 28 days?
3. To raise the funds for Kerala flood victims, Saheen and her team organised 3 musical shows every day for 14 days. How many such musical shows did they organise to raise the fund?
4. Robin goes to school by cycling. He cycles 11km everyday. How many kilometres does he cycle in 17 days?

Complete the grid by multiplying the numbers.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4										
5										
6										
7										
8										
9										
10										

1. Look at the cross in your grid.

a. Add the numbers together from left to right.

6 + 8 + 10 = ◯

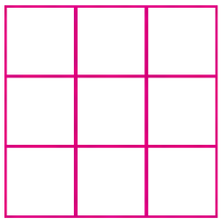
b. Add the numbers together from top to bottom.

4 + 8 + 12 = ◯

What did you notice?

2. Do this with other crosses?

a. Cross 1



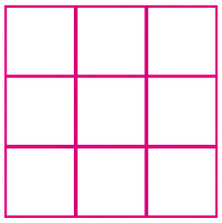
Sum from left to right

___ + ___ + ___ = ◯

Sum from top to bottom

___ + ___ + ___ = ◯

b. Cross 2



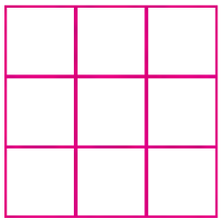
Sum from left to right

___ + ___ + ___ = ◯

Sum from top to bottom

___ + ___ + ___ = ◯

c. Cross 3



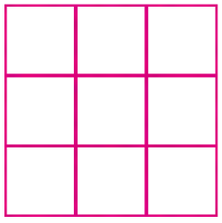
Sum from left to right

___ + ___ + ___ = ◯

Sum from top to bottom

___ + ___ + ___ = ◯

d. Cross 4



Sum from left to right

___ + ___ + ___ = ◯

Sum from top to bottom

___ + ___ + ___ = ◯

What do you see?

10. Sharing Equally

T3J9M4

Peter, Nimkit, Aradhya, Tenzing and Alam were returning home from school.

Nimkit takes the responsibility of distributing the 15 blackberries equally.
Nimkit starts by giving 1 blackberry to each child and keeps 1 for her. Then she distributes one more blackberry among them.

Each child has got two blackberries now.
How many blackberries are left?

She gives one more blackberry to each child and also keeps 1 for her.

All the blackberries are finished. 15 blackberries have been divided among 5 children. Each child gets 3 blackberries.

This is written as: $15 \div 5 = 3$

Sitting in groups

Let us do

Fill up the blanks as per the instructions given-

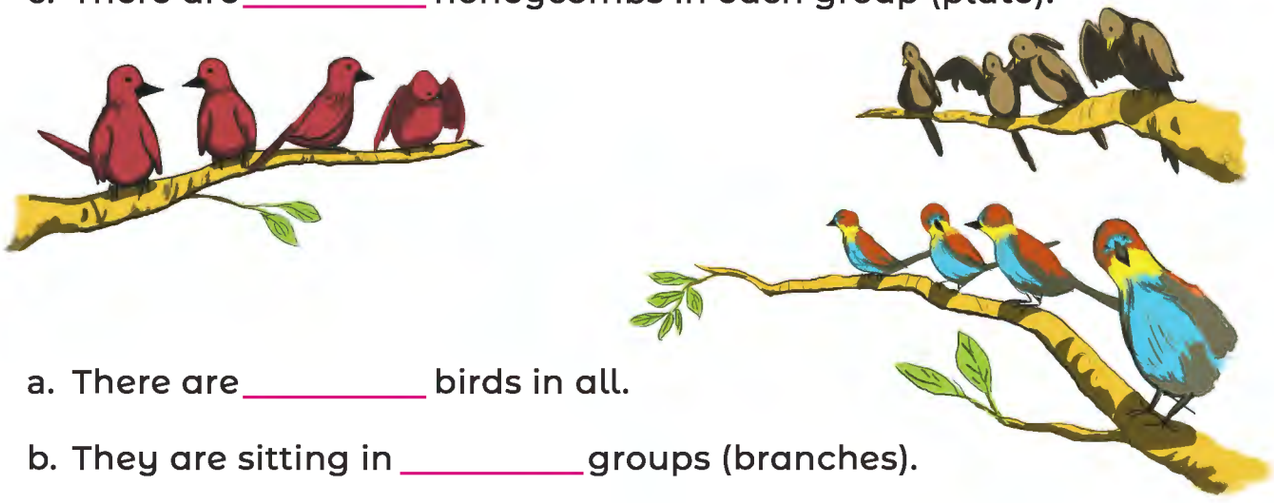
1.

a. There are _____ honeycombs in all.

b. They are in _____ groups (plates).

c. There are _____ honeycombs in each group (plate).

2.



a. There are _____ birds in all.

b. They are sitting in _____ groups (branches).

c. There are _____ birds in each group (branch).

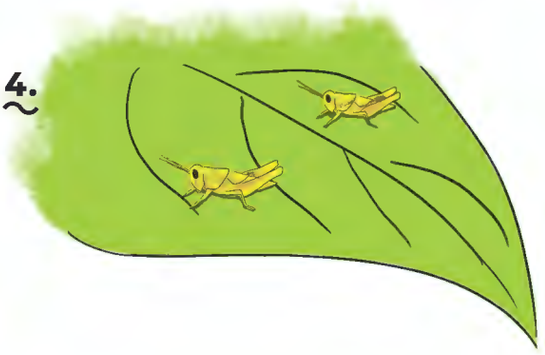
3.

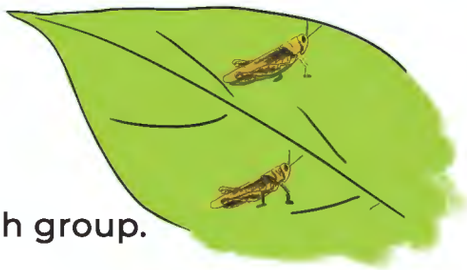
a. There are _____ khabjeys

b. They are in _____ groups.

c. There are _____ khabjeys in each group.

4.





a. There are _____ grasshoppers.

b. They are sitting in _____ groups.

c. There are _____ grasshoppers in each group.

Let us draw

1. Draw 6 flowers in 3 flower pots equally.

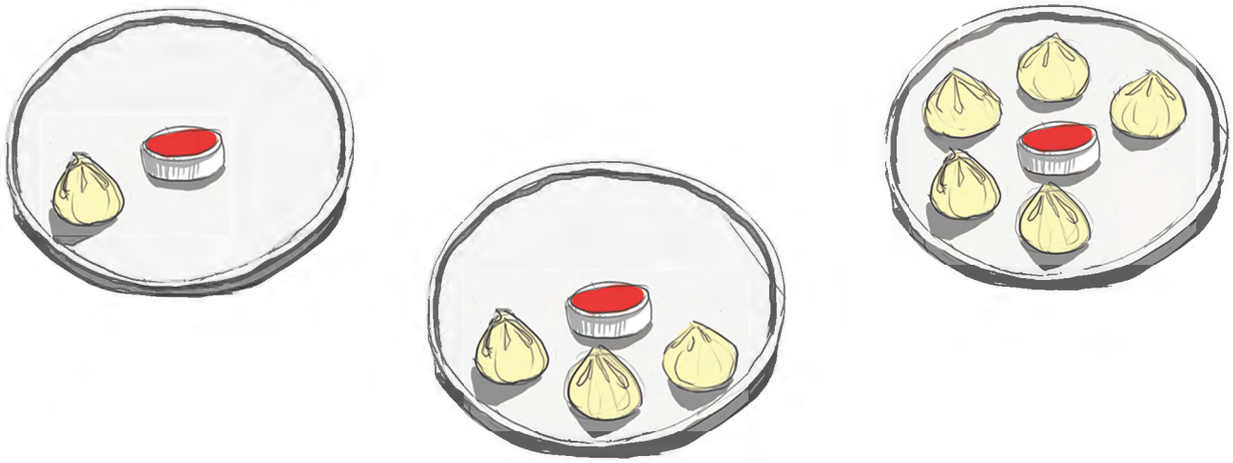
There are _____ flowers in each group.

2. Draw 12 stars in 4 clouds equally.

There are _____ stars in each group.

Try these now

1. Chandra Kala has 3 plates of momos.



Put the momos on empty plates below, so that each plate has the same number of momos.

a. How many momos are there altogether?_____

b. How many momos are there in each plate now?

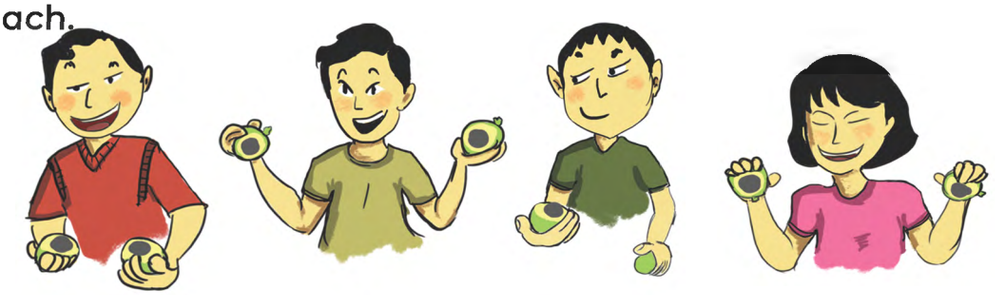
c. Discuss in the class how you found the answer.

Teacher's Note: Teacher may encourage students to do the above activity in different possible ways, for e.g. children can count all momos and distribute them equally in empty plates given or they can simply take away 2 momos from the plate having 5 momos and keep those 2 momos on the plate having 1 momo thus making 3 momos each in all the plates.

2. Here are 8 pumsees (avacados) and four children.

If they share the pumsees equally, each child will get two pumsees. 8 pumsees divided into four equal parts = 2 pumsees each.

$8 \div 4 = 2$



a. If there are 20 pumsees and only 2 children,

how many will each child get? _____ pumsees

3. Hari gave 6 ₹10 to his younger sister Meena and also asked her to give equal share to Rohit the younger brother.

a. How many ₹10 notes will each get? _____

b. So, 6 ₹10 ÷ 2 children (Meena and Rohit)

= _____ ₹10

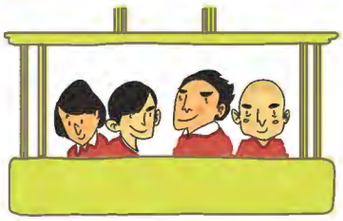
c. How much is each one's share? _____

4. Zigmee and Choden decided to visit their grandparent's house with their father at Ravangla. Their mother gave them a ₹100 note as pocket money and asked them to share equally.

a. How much will each get? _____

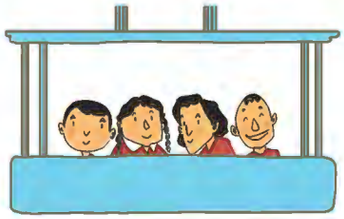
How many cabins required in Rotey-ping?

We are 20 students in Class 3. Only 4 can sit in one cabin. So how many cabins do we need for us?

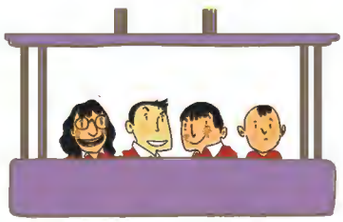


4 friends in the first cabin 16 friends are left.

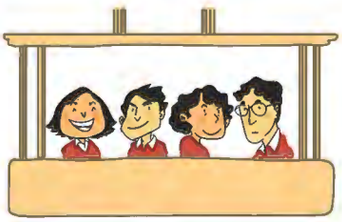
4 more friends in the second cabin. 12 friends are left.



4 more friends in the third cabin. 8 friends are left.



4 more friends in the fourth cabin. 4 friends are left.



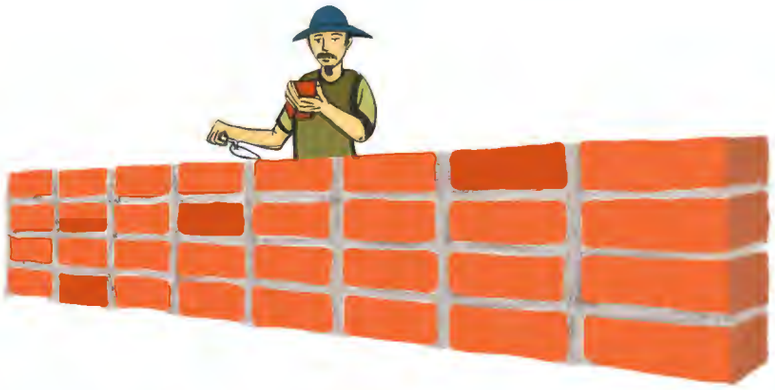
4 more friends in the fifth cabin.

20 students have filled up 5 cabins of the Rotey-ping

20 friends to sit into equal groups of 4 each take 5 cabins.

Let us try

1. Here are 32 bricks.



A mason puts 8 bricks on one layer of a wall.

The layers that 32 bricks can make: 32 ÷ 8 = 4

a. If there are 56 bricks, and the mason puts 7 bricks on each layer, there will be _____ layers with bricks.

56 ÷ 7 = _____

2. Here are 28 buttons.

A tailor puts 4 buttons on one shirt.

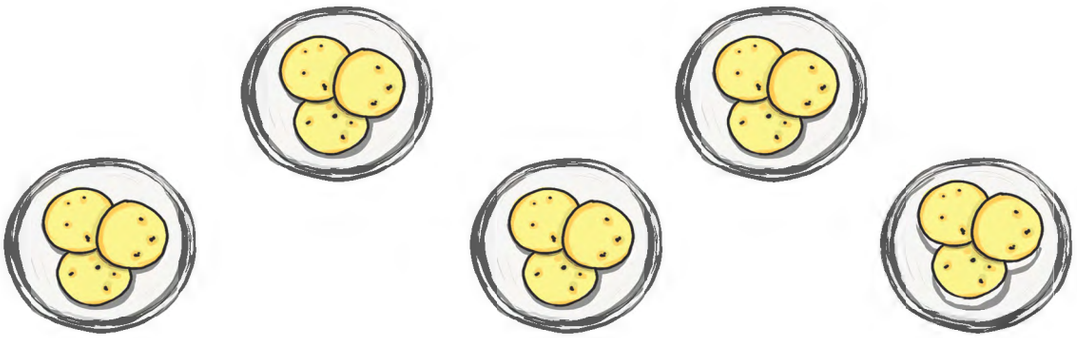
So now there are 7 shirts with buttons: 28 ÷ 4 = 7

a. If there are 28 buttons, and the tailor puts 7 buttons on each shirt, there will be _____ shirts with buttons.

28 ÷ 7 = _____

Practice Time

1. Sareena's father puts 15 rotis equally into 5 trays.



a. How many rotis are there in each tray?

There will be _____ rotis in each tray.

15 ÷ 5 = _____

b. If he uses only 3 trays, how many rotis will there be in each tray now?

There will be _____ rotis in each tray.

_____ ÷ 3 = _____

2. Share 25 marbles among 5 children.

a. How many marbles for each child?

_____ ÷ 5 = _____

Each child has _____ marbles.

3. Raju has 35 minutes to make parathas. One paratha takes 5 minutes.

a. How many parathas can he make in the time he has?

He can make _____ parathas.

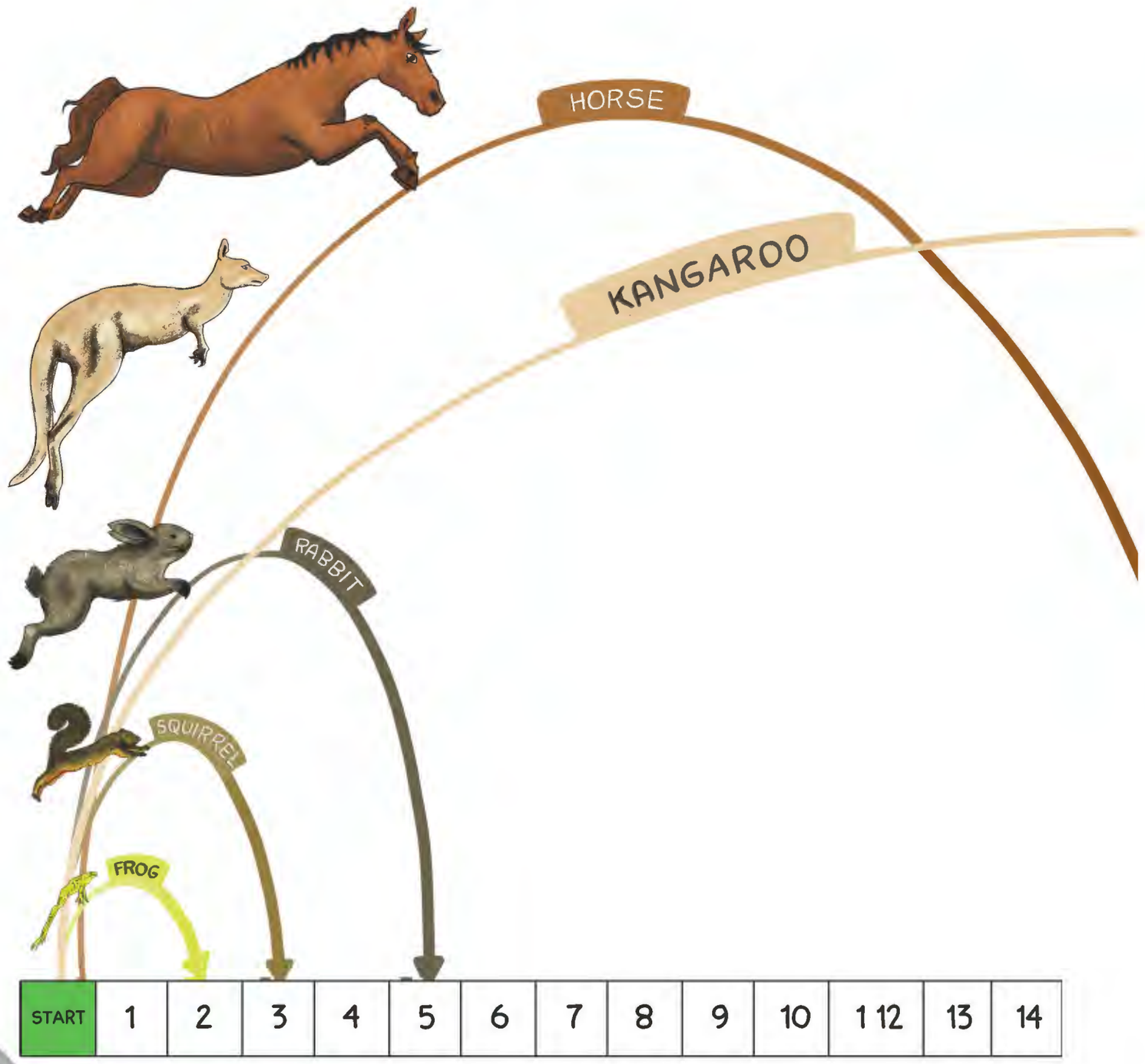
4. Palden has 15 muthas of iskushko munta (tender leaves of squash) to sell.

a. Five women came and bought equal muthas of iskushko munta.

Each woman got _____ number of muthas.

Jumpy animals

a. A frog jumps 2 steps at a time.
b. A squirrel jumps 3 steps.
c. A rabbit jumps 5 steps.
d. A horse jumps 15 steps.
e. A kangaroo jumps 30 steps.



Use the path to find out:

1. In how many jumps will the frog reach 30?

   30 ÷ 2 = _____

2. In how many jumps will the squirrel reach 27?

   27 ÷ 3 = _____

3. Which number will the kangaroo reach in two jumps? _____

4. Who all will meet at 15?

   _____

5. Will the rabbit ever be at 18? _____

6. How many jumps of the rabbit equals with one jump of the horse? _____

7. How many jumps of the horse equals two jumps of the kangaroo? _____

8. Write the smallest number where the frog and the squirrel will meet. _____

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Let us try this

1. Divide into groups of 2 using 2 times table.

18 ÷ 2 = 9	18 = 2 × 9
6 ÷ = 3	
16 ÷ 2 =	
20 ÷ 2 =	
÷ 2 = 7	
÷ 2 = 10	
8 ÷ = 4	
÷ 2 = 5	

2. Divide into groups of 5 using 5 times table.

10 ÷ 5 = 2	10 = 2 × 5
20 ÷ = 4	
15 ÷ 5 =	
40 ÷ = 8	
20 ÷ 5 =	
÷ 5 = 6	
÷ 5 = 3	
35 ÷ 5 =	
÷ 5 = 2	
÷ 5 = 5	

3. Divide into groups of 10 using 10 times table.

20 ÷ 10 =	
30 ÷ 10 =	
40 ÷ 10 =	
50 ÷ 10 =	
40 ÷ = 4	
÷ 10 = 5	
÷ 10 = 3	
÷ 10 = 8	
÷ 10 = 2	
60 ÷ = 6	

Try this

4 ÷ = 2	
14 ÷ 7 =	
6 ÷ 3 =	
÷ 2 = 7	
÷ 2 = 3	
15 ÷ 3 =	
8 ÷ 4 =	
15 ÷ 5 =	
8 ÷ = 4	
÷ 2 = 8	

Teacher's Note: Encourage children to explore the use of multiplication facts for division through mental computation.

11. Shopping Time

Q4E2G5

Let us do shopping

Item	Price per piece (per packet)
	₹50 comic book
	₹25 sketch pen
	₹30 momos
	₹10 orange
	₹30 kiwi
	₹80 ball
	₹60 drawing book

Item	Price per piece (per packet)
	₹20 biscuits
	₹5 marble
	₹130 soft toy
	₹35 crayons
	₹70 handicraft toy
	₹25 balloons
	₹40 pencil bag

Ashish

What items did you buy?
How much did you all spend?

I had ₹200 with me before and now only ₹60 is remaining. I have bought 1 orange, 1 ball, a packet of balloons and a packet of sketch pens.

Kenum

I also had ₹200 in the beginning but now I have ₹45 remaining.

1. How much did Ashish spend?

Item	Rate per piece (per packet)	Amount
1 orange	₹10	
1 ball		
1 packet of balloons		
1 set of sketchpens		
	Total	

2. Who spent more and by how much?

Saroj

Madam, I bought 1 packet of crayons, 1 handicraft toy for me and 2 kiwis for my younger sister.

Pema

I bought a colouring book, 1 plate momo, a pencil bag for me and 5 marbles for my brother.

1. Complete the table below:

Saroj's List

Item	Rate per piece (per packet)	Amount
1 packet crayons	₹35	
1 handicraft toy		
2 kiwis		
	Total	

Pema's List

Item	Rate per piece (per packet)	Amount
1 colouring book	₹60	
1 plate momo		
1 pencil bag		
5 marbles		
	Total	

2. Look at the tables above and answer:

a. How much did Saroj and Pema spend all together?

b. How much money is left with Pema if he also had ₹200 in the beginning?

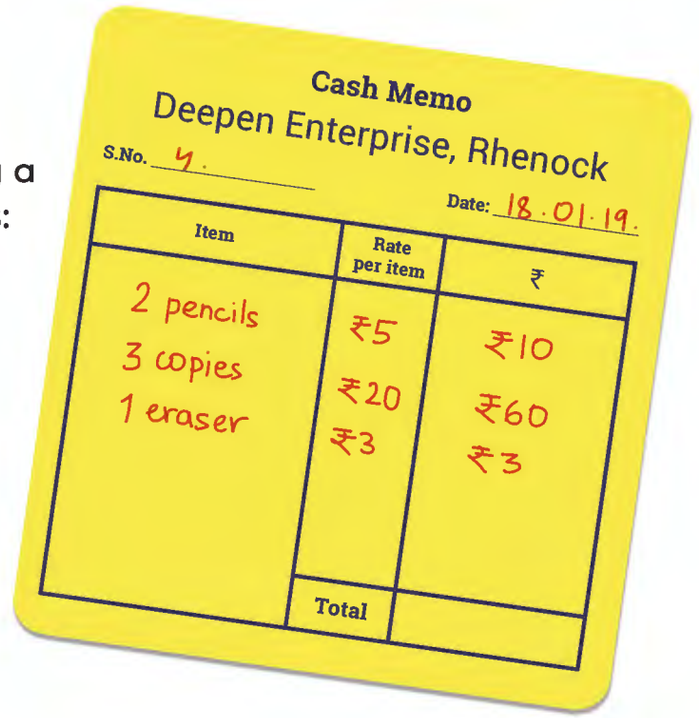
Teacher's Note: Create play money with the help of children and use it for such activity.

Cash Memo

1. Cash memo given to Sahil by a shopkeeper for his purchases:

a. What is the total cost of all items?

b. How much does Sahil receive if he gives ₹100 note to the shopkeeper?



Cash Memo

Deepen Enterprise, Rhenock

S.No. 4. Date: 18.01.19.

Item	Rate per item	₹
2 pencils	₹5	₹10
3 copies	₹20	₹60
1 eraser	₹3	₹3
	Total	

Let us do

1. Check the cash memos and correct them if you find a mistake.

Cash Memo

Yankee's fast food

S.No. 1. Date: 18.2.19.

Item	Rate per item	₹
2 plate momos	₹30	₹100
3 cups tea	₹10	₹30
4 plate samosa	₹20	₹70
	Total	₹200

Cash Memo

Yankee's fast food

S.No. 10. Date: 19.2.19.

Item	Rate per item	₹
1 plate Aluchura	₹25	₹25
2 Thupka	₹40	₹80
3 plate Alupuri	₹20	₹50
	Total	₹155

2. Prepare your own cash memo of the items that you need and share that with your friends.

Teacher's Note: Give a project of collecting cash memos from the shopkeeper when they go for shopping next time and get them to read cash memos in the class.

Dewsi and Bhaileni

Ayesha, Sneha, Monrani and Yasana went for Bhaileni on Laxmi Puja during Diwali festival. After playing in 8 houses in the locality they thought of sharing the money they collected.

They found out that they had the following counts:

Notes	Number of notes	Amount
₹ 10	16	
₹ 50	4	
₹ 100	3	
₹ 200	1	
	Total	

a. How much money did they collect?

b. How much is each one's share if they distributed the money equally among them?

The next day on Hali Tiwar, Rahul, Bikash, Dhan Hang and Akash decided to play Dewsi. They visited 10 houses in the locality and shared ₹210 each.

c. How much money had the Dewsi team collected?

d. Which team collected more money and by how much?

Why is Bhaileni played by only girls and why is Dewsi played by boys only?

Piggy Bank

Deepak decided to break his Piggy Bank to buy gift for his sister on Rakhi Festival and also to contribute for teachers' day celebration in his school.

He found out that the Piggy bank had coins as mentioned below:

Coin	Number of coins	Total value
₹1	35	
₹2	17	
₹5	8	
₹10	3	

The piggy bank also had currency notes as mentioned below:

Note	Number of notes	Total value
₹5	8	
₹10	6	
₹20	2	
₹50	1	

a. How much money is there in coins and in notes?

b. Is it possible for Deepak to buy a gift costing ₹150 and make the contribution of ₹30 for teachers' day celebration by using only notes?

c. How much money is left with Deepak after buying the gift and making the donation?

Teacher's Note: Initiate the discussion about what Deepak should do about the remaining money. Should he use it for other purpose or again put it back to the Piggy Bank?

Practice time

1. Let us add

a. 

b. 

c. 

d. 

2. How much will be the total value of:

a. 

b. 

c. 

d. 

3. Let us add some more:

a. ₹ 53 + ₹ 24 = _____

b. ₹ 642 + ₹ 137 = _____

c. ₹ 453 + ₹ 326 = _____

d. ₹ 49 + ₹ 54 = _____

e. ₹ 215 + ₹ 157 = _____

f. ₹ 555 + ₹ 425 = _____

4. Let us think:

a. Sarita went to a shop and bought an eraser for ₹10 and also bought a sharpener for ₹5. She gave ₹20 note to the shopkeeper?

How much money will I get back?

For your first purchase: ₹ 20 – ₹ 10 = ₹ 10

For second purchase: ₹ 10 – ₹ 5 = ₹ 5

So you will get back ₹ 5

I can do it in another way:

All purchases: ₹10 + ₹5 = ₹15

Remaining: ₹20 – ₹15 = ₹5

So I should get back ₹5

b. Chopel's mother gave him ₹50 to buy garlic and onion. He paid ₹25 for onion and ₹10 for the garlic. How much money is left with him?

First method:

First purchase: ₹____ – ₹____ = ₹____

Second purchase: ₹____ – ₹____ = ₹____

Second method:

All purchases: ₹____ + ₹____ = ₹____

Remaining: ₹____ – ₹____ = ₹____

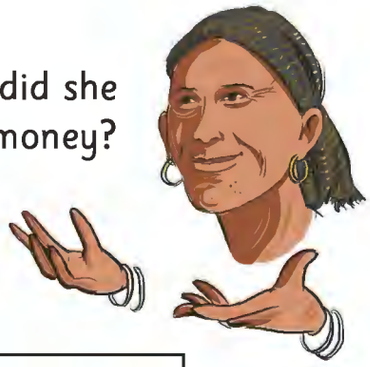
What do you do with all these money?

I sell vegetables for a week, collect all money, buy vegetables to sell for next week with some money, use some part for food and ration for my family.

Who gave you this ₹50 note?

My mother.

From where did she get that money?



From where did my mother get this ₹50 note?

Teacher's Note: Initiate discussion on the following: From where do parents get money? And also how do they use it?

c. Kinzang bought a tea pan for ₹130, a tea strainer (channe) for ₹20. He gave ₹200 note to the shopkeeper. How much money should Kinzang get back?

First method:

First purchase: ₹____ – ₹____ = ₹____

Second purchase: ₹____ – ₹____ = ₹____

Second method:

All purchases: ₹____ + ₹____ = ₹____

Remaining: ₹____ – ₹____ = ₹____

d. Christina went to a shop with a ₹500 note. She bought a football for ₹250. Then she went to another shop and bought a badminton racket for ₹200 and also a shuttle for ₹30. How much money is left with her?

First method:

First purchase: ₹____ – ₹____ = ₹____

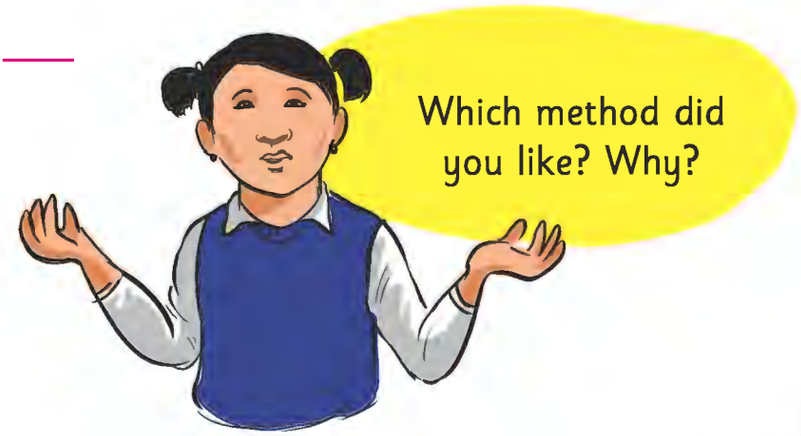
Second purchase: ₹____ – ₹____ = ₹____

Third purchase: ₹____ – ₹____ = ₹____

Second method:

All purchases: ₹____ + ₹____ + ₹____ = ₹____

Remaining: ₹____ – ₹____ = ₹____



5. Let us subtract some more:

a. ₹ 87 − ₹ 54 = _____

b. ₹ 428 − ₹ 310 = _____

c. ₹ 987 − ₹ 235 = _____

d. ₹ 95 − ₹ 46 = _____

e. ₹ 305 − ₹ 110 = _____

f. ₹ 897 − ₹ 638 = _____

Tendong Lho Rum Faat

Agya Tshering, the father of Gyanmit and Paasangkit decided to take his daughters to Namchi, South Sikkim to attend Tendong Lho Rum Faat festival. They all live in Rinchenpong, West Sikkim.

They decided to take this route as under:

Taxi Fare for the journey is given as below:

Departure	Arrival	Fare per person	Fare for 3 persons
Rinchenpong	Kaluk	₹20	
Kaluk	Jorthang	₹90	
Jorthang	Namchi	₹50	
	Total		

a. What is the fare from Rinchenpong to Namchi for one person?

b. How much did the father pay for all the three from Rinchenpong to Namchi and back to Rinchenpong?

c. If the father had kept two ₹500 notes for taxi fare, then how much is left with him after reaching back home?

Picnic time

Dhriti and her 11 friends decided to go for a picnic on New Year Day. They wanted to make it special by cooking food at the picnic spot. Each one of them brought some ingredients from their home. They also purchased few items from nearby shop.

They purchased the following:

Items	Quantity	Rate (per kg/ per litre)	Amount
Rice	2 kg	₹ 45	
Mustard oil	half litre	₹ 110	
Onion	half kg	₹ 40	
Potato	1 kg	₹ 30	
Tomato	1 kg	₹ 45	

a. How much do they need to spend for onion and potato?

b. On which items did they spend the most?

c. What is the total expense?

d. How much money will be left with them if they have contributed ₹25 each for the picnic?

Teacher's Note: Initiate the discussion regarding picnic with students and assist them in preparing their list for the picnic party. To find the price of half kg onions refer to the chapter 'Playing with Balance': 1 divided in 2 equal parts make 2 halves. So ₹40 divided into 2 equal parts would be the price of half kg onion. Similar discussion will be needed for half litre oil.

12. Clock and Calendar

M6T5K2

It was Rubina's birthday.
She completed 8 years.

Her mother woke her up at 6 O'clock.

She completed her routine activities by 7 O'clock.

Rubina leaves at 8 O'clock to attend her school.

She was happy and surprised to see her classmates and the class teacher Ms Rewati Gurung welcoming and wishing her happy birthday.

During lunch time at 12 O'clock, Rubina shared aloo dum and sel roti with her friends. Her mother and father had prepared it in the morning.

Look at the clock.

1. How many hands does it have?
2. Are the two hands same?
3. Which hand moves faster and what does it show?
4. Draw the hands in the clock given below to show:

a. the time 10 O'clock

b. your dinner time

5. Have you seen a clock or a wrist watch without having such hands? If it does not have time telling hands then how do you read the time in it?

6. Does someone in your family use a wrist watch?
7. Is it an analog watch or a digital watch?
8. Which watch you find easier to check the time?
9. Does the digital watch show anything else? What?

Teacher's Note: **1.** Get a working clock for children to observe. **2.** Show the children a working digital clock/watch. Draw their attention to the day and date shown in the digital clock/watch.

Draw the missing hour and minute hands showing the time of different activities you do-

1. You wake up in the morning

2. You have your breakfast.

3. You go to your school.

4. You get back from your school

5. You play with your friends.

6. You have your dinner.

7. You go to bed.

Think and tell

1. Do you know how many days are there in a week?
2. Which day comes before Friday?
3. If today is Friday, which day will it be tomorrow?
4. If today is Friday, which day will it be day after tomorrow?
5. Which day comes after Saturday?

Today is 1 October, Tuesday and it is Rubina's birthday!

Next week she is having Dasain holidays starting from Saturday to Thursday. She will visit her grandparents during her holidays along with her parents.

1. Complete the calendar by writing the dates:

	OCTOBER				
SUN			13		27
MON		7		21	28
TUE	1			22	
WED					
THU			17		31
FRI		11			
SAT	5		19	26	

2. How many days are there in October?

3. On which day do we celebrate "Gandhi Jayanti", the birthday of Mahatma Gandhi?

4. Mark Rubina's birthday with a circle or color green in the calendar.

5. Mark all the Sundays and all holidays in red.

6. What are the dates on the 1st and the 3rd Saturday?

CALENDAR 2021

JANUARY 2021

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

FEBRUARY 2021

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

MARCH 2021

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

APRIL 2021

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

MAY 2021

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JUNE 2021

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

JULY 2021

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 2021

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER 2021

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER 2021

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER 2021

S	M	T	W	T	F	
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER 2021

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

List of Holidays for 2021

New Year's Day	*:1st Jan.*	*Saga Dawa*	*:26th May*	*Bahadur Bhandari, Former C.M. of Sikkim*	
Barahimizong	*:4th Jan.*	*Shyadar Pidar*	*:26th May*	*Durga Puja (Dasain)*	*:13-17th Oct.*
Maghe Sankranti	*:14th Jan.*	*Bhanu Jayanti*	*:13th July*	*Lhabab Duechen*	*:27th Oct.*
Republic Day	*:26th Jan.*	*Drukpa Tshe-zi*	*:14th July*	*Laxmi Puja (Deepawali)*	*:4th-6th Nov.*
Sonam Lochhar	*:12th Feb.*	*Guru Rimpoche's Thrunkar Tshechu*	*:19th July*	*Puhgal Parim*	*:19th Dec.*
Losar	*:12th Feb.*	*Tendong Lho Rum Faat*	*:8th Aug.*	*Teyongsi Sirijunga*	*:19th Dec.*
Bhumchu	*:27th Feb.*	*Independence Day*	*:15th Aug.*	*Sawan Tongnam*	
Holi	*:29th Mar.*	*Pang Lhabsol*	*:22nd Aug.*	*Sakewa*	*:24th Dec.*
Good Friday	*:2nd Apr.*	*Janmasthami*	*:30th Aug.*	*Baharahimijong*	*:24th Dec.*
UCWSS Prayer Day	*:11th Apr.*	*Teej (Haritalika)*	*:9th Sept.*	*Christmas*	*:25th Dec.*
Dr. B.R. Ambedkar Jayanti	*:14th Apr.*	*Indrajatra*	*:20th Sept.*	*Tamu Lochar*	*:30th Dec.*
Ramnawami (Chaite Dasain)	*:21st Apr.*	*Gandhi Jayanti*	*:2nd Oct.*		
Id Ul Fitr	*:14th May*	*Birthday of Late Nar*	*:5th Oct.*		
State Day	*:16th May*				

1. See the calendar and write down the following –

a. How many months are there in a year?

b. Which months have only 30 days?

c. How many months have 31 days? Which are they?

d. Find a month in the calendar, which has neither 30 nor 31 days. Write the name of the month and number of days it has.

2. Have you seen your parents or other family members checking a calendar to know the dates and days of different festivals like– Dasain, Laxmi Puja, Lossong, Saga Dawa, Holi, Christmas, Eid or someone's birthday or an anniversary?

   a. Find some other important events we check in a calendar in our school or at home.

   b. Which festival do you celebrate? In which month does it come?

   c. In which month does it start raining in Sikkim? Is it there in the calendar?

   d. Which month do people plant paddy?

3. Rubina has listed some of the important festivals during the year 2022 when she will have holidays or celebrations in her school. But she did not arrange the festivals in a sequence from beginning to the end of the year. Can you list them correctly in this table?

Festival	Date

Festival	Date
Dasain	13th October
Losoong	3rd January 2022
Maghe Sankranti	14th January
Republic Day	26th January
Losar	12th February
Holi	29th March
Sakewa	24th December
Saga-Dawa	26th May
Independence Day	15th August
Bhanu Jayanti	13th July
Pang Labsol	22nd August
Laxmi Puja / Tihar	4th November
Christmas	25th December
Janmashtami	30th August

Teacher's Note: Initiate discussion on seasons connecting them to crop cycles and other local events.

During her Dasain holidays Rubina had lots of fun with her Boju and Baje. Her parents cleaned the house and also they painted the walls with beautiful colours. Rubina's boju was busy knitting a pullover for her for the coming winter. On last day of the festival 'Dasain' her parents together prepared delicious food items, specially the sel roti and aloo dum.

Have you ever seen someone painting the house? Or someone preparing sel roti and aloo dum?

How long does it take?

1. In which picture does it take longer for uncle to clean the school compound?

2. Think of events that can take different amount of time and write in the table below -

takes months	takes days	takes hours	takes minutes
Growing paddy	Painting the house	Stitching a dress	Having breakfast
Growing guavas	Knitting a sweater	Cleaning of school campus	Taking a bath

This is Rubina's birth certificate.

GOVERNMENT OF SIKKIM
CHIEF REGISTRAR OF BIRTHS & DEATHS HEALTH &FAMILY WELFARE DEPARTMENT

BIRTH CERTIFICATE

Certificate of Birth issued under section 12/17 of the Registration of Birth & Death Act, 1969.

This is to certify that the following information has been taken from the original record of Birth which is in the Register of Registration Centre RHENOCK P.H.C. for Revenue Block/ Town RHENOCK of North/ East/ South/ West District of Sikkim.

Name: RUBINA PRADHAN
Sex: FEMALE
Date of birth (in figures): 01.10.2012
(in words) ONE OCTOBER TWO THOUSAND AND TWELVE
Place of Birth: RHENOCK
Name of Father: MR. RATAN KR. PRADHAN
Name of Mother MRS. RUPA PRADHAN
Registration Number: 642/12
Date of Registration: 10.05.2013
Signature of issuing authority

1. How old Rubina was on her last birthday?
2. How old will she be on 1 October, 2021?
3. What is the registration number of her birth certificate?
4. On which date will she be 10 years old?
5. After how many months of her birth was the certificate given?

6. Can you make your own "Birth Certificate" by filling the blank one given here?

GOVERNMENT OF SIKKIM
CHIEF REGISTRAR OF BIRTHS & DEATHS HEALTH &FAMILY WELFARE DEPARTMENT

BIRTH CERTIFICATE

Certificate of Birth issued under section 12/17 of the Registration of Birth & Death Act, 1969.

This is to certify that the following information has been taken from the original record of Birth which is in the Register of Registration Centre _____ for Revenue Block/ Town _____ of North/ East/ South/ West District of Sikkim.

Name: _____ Sex: _____

Date of birth (in figures): _____ (in words): _____

Place of Birth: _____

Name of Father: _____ Name of Mother: _____

Registration Number: _____ Date of Registration: _____

Signature of issuing authority

13. Tally and Tell

M8W7Y8

Asar Pandhra

Anmol is in Class 3. His father Prem has a paddy field. He decided to do the ropai (rice plantation) in his field with Bethi during Asar Pandhra.

Now we have to make necessary arrangements for ropai with Bethi.

What is Bethi father? 

Bethi is a ropai done by singing asare song with naumati baja.

Oh! It`s really interesting. I want to help you to arrange ropai. 

Fine! Then let us divide our work.

I will help you to search khetalas for ropai. 

I will help to serve khaja for khetalas.

In order to search for khetalas, Anmol made the following table with the help of his father.

Khetala	Number of persons
Beeyade	3
Hali	6
Bawsey	9
Ropar	15

1. Look at the table and tell:

a. How many khetalas are there in total?

b. Numbers of ropars are _____ (less/more) than number of halis.

c. If 8 ropars are women, how many ropars are men?

d. Total number of Hali + total number of Beeyade = Total number of _____.

But Anmol's mother made the same table in different way.

Khetala	Number of persons
Beeyade	☺ ☹
Halis	
Bawsey	
Ropar	☺☺☺☺☺☺☺☹

☺ = 2 persons

☹ = 1 person

2. In the above chart draw the faces to show the number of bawsey and halis.

3. Whose khetala list is better? Why? Discuss with your friends.

Anmol's mother decided to make khaja (dopahare) and tea for khetalas.

We have to serve khaja for all the khetalas and also to 9 persons playing naumati baja.

Let us count and make the estimate for it.

In order to make their work simple they prepare the chart showing different items needed for khaja and its amount as shown below.

Items	Amount
Dahi (curd)	21 litre
Cheura (beaten rice)	10 kg
Cheeni (sugar)	4 kg
Doodh (milk)	2 litre
Kola (banana)	7 dozen
Tea	42 cups

5. Now look at the chart and answer the following.

a. Anmol and his mother have to prepare khaja for _____ persons.

b. There are _____ bananas in total.

c. Each person will get _____ bananas.

d. Each person will get _____ litre of curd.

e. If 2 more persons come to help them in ropai, then they have to add _____ litre more curd in their list.

Class wise Attendance of Anmol's School

Attendance Board			
Classes	Present	Absent	Total
Class 1	17	2	19
Class 2	14	3	
Class 3	13		13
Class 4		1	15
Class 5	16	4	
Total			

1. Complete the above table and answer the following:

a. For how many children was MDM cooked that day?

b. Which class had the most number of children.

How many were there?

c. Class _____ had the least number of children.

How many were there?

d. Number of children in Class 4 was more than the number of children in Class _____ .

e. Number of children in Class 1 was less than the number of children in _____ .

f. Number of children present in Class 5 was less than the number of children present in Class _____ .

g. All children of Class _____ were present.

h. Total number of children in Class 2 was _____ .

Absent Students' Chart

Class	Class 1	Class 2	Class 3	Class 4	Class 5
Absent students ☹ = 1 absentee	☹ ☹				

a. Class _____ had all students present.
How many were present?

b. Class _____ had the highest number of absent students.

c. Class _____ had the least number of absent students.

Activity

1. Make a record of daily attendance of your class for a week and complete the table below:

Days	Present	Absent	Total
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			

2. Now answer the following:

a. On which day was the most number of students present?

b. Find out why students were absent.

3. Prepare absent students chart from the above table.

Day	Absent students (☺ = 2 absentees)
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Cook Uncle and Mid Day Meal

Cook Uncle Uday Chandra Ghimirey of Taza Junior high school, East Sikkim, prepares weekly mid day meal menu chart of his school.

Students of Class 3 help cook uncle to prepare the chart.

	Menu
Monday	rice, dal, potato
Tuesday	khichdi, dhaniya chatni
Wednesday	rice, sinki, pudina chatni
Thursday	rice, gundruk, egg, pickle
Friday	kheer, aludum
Saturday	khichdi, dhaniya chatni

1. Now look at the chart and fill in the blanks:

a. Number of items prepared on _____ was more than number of items prepared on _____ .

b. _____ was prepared on more number of days and on how many days?

c. Kheer was prepared only _____ in a week.

d. _____ (day) and _____ (day) had the same items.

e. _____ (day) and _____ (day) had different items but same number of items.

f. Item _____ was not prepared at all.

g. More number of items were prepared on_____ .

Bamboo Products

Dawkit is a student of Class 3. Her father Pempa sells self-made bamboo products in his shop. Dawkit helps her father every day to record the number of different items sold. Dawkit does so using a paper and a pencil.

After arranging different items in column, she puts against each items (|) mark for one sold, (||) mark for 2 sold and so on.

Bamboo Items	How many sold?
Doko	||||||
Dalo	||
Nanglo	|||||||
Thunse	|
Mandro	||
Dhaki	|||

Her mother made it simpler by asking her to make group of five and suggested that fifth mark in a group of 5 marks should be used as a cross, as shown by 𝍸 .

Thus, 𝍸 || shows the count to be 5 + 2 = 7
and 𝍸 𝍸 shows 5 + 5 = 10.

These are tally marks.

With tally marks the table looks like:

Bamboo Items	Tally Mark	How many sold?
Doko	𝍸 II	7
Dalo	II	2
Nanglo	𝍸 III	8
Thunse	I	1
Mandro	II	2
Dhaki	III	3

a. How many pieces of bamboo items were sold on that particular day?

b. If the cost of one dhaki is ₹75, how much money did they collect on that day by selling dhaki?

Water Tank Repairing

Water tank of Lower Aho, East Sikkim was damaged by land slide at Andheri khola.

Villagers decided to repair the tank themselves. Each house from the locality contributed money for the reapirs.

Suraj Poudyal, resident of lower Aho had to look after the work. He used tally marks to do the monthly attendance of workers as shown below:

Name	Monthly attendance	Total
Lakki	𝍸 𝍸 𝍸 𝍸 𝍸 ||	27
Kamal	𝍸 𝍸 𝍸 |||	
Subhadra	𝍸 𝍸 𝍸 𝍸 |||	
Rudra	𝍸 𝍸 𝍸 |||	
Kalpana	𝍸 𝍸 𝍸 ||||	
Aradhya	||	
Daukit	𝍸 𝍸 𝍸 𝍸	
Uma	|||	
Yamu	𝍸 𝍸 𝍸 𝍸 𝍸 |	

1. Complete the above chart and answer the following:

a. Who worked for the most number of days and how many days?

b. Who will get the lowest wage? Why?

c. Rudra and _____ worked for same number of days.

d. Attendance of Yamu is less than _____ .

e. Kalpana had worked for_____ days.

f. If daily wages of a worker is ₹350, how much money did Aaradhya collect?

2. Can you make the above attendance chart differently? Think and discuss.

Children Fun Park

Anju and Karna went to Savin Kingdom, Siliguri with their father.

1. Look at the picture and fill in the games played:

Types of games	Tally marks	Number of children
See-saw (chakachuli)		
Slide (sulsuley)		
Swing (ping)		
Swimming		
Toy train		

a. Most of the children are playing _____ .
How many?

b. The game _____ is played by least number of children. How many?

Try yourself

1. Collect information about the number of family members of your friends and complete the following table.

Number of family members	Tally marks	Number of friends
2		
3		
4		
5		
6		

2. From the above table answer the following:

a. How many friends have less than 4 family members?

b. How many friends have more than 4 family members?

c. _____ friends have exactly two family members.

d. _____ friends have most number of family members.
How many?

e. _____ friends have least number of family members.
How many?

Cultural Dance competition:

During Independence Day celebration at Pakyong, East Sikkim, children of various schools had participated in cultural dance competition showing different cultures and tradition of Sikkim.

The chart below is showing number of children wearing different cultural dresses of Sikkim while performing in the cultural dance competition:

Dresses	Number of children [☺ = 2 children]	Total
Daura - Suruwal	☺ ☺ ☺ ☺ ☺ ◔	11
Hanju - Bakhu	☺ ☺ ☺ ☺ ☺ ☺ ☺	
Dumvum	☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ◔	
Fariya - Chaubandi	☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ◔	
Thokro - Dum	☺ ☺ ☺ ☺ ☺ ☺ ☺	

1. Complete the table and fill in the blanks:

a. Total number of children wearing Hanju-Bakhu is . _____

b. Number of Children wearing daura-suruwal was less than number of children wearing _____ .

c. Number of children wearing _____ and _____ were equal.

d. Number of children wearing thokro-dum was more than number of children wearing _____ .

Activity:

1. Make your own charts about things around you.
Like-

a. Which bird has the most colours?
b. Your friend's birthday falls in which month?

Teacher's Note: Provide ample opportunities and situations for students to collect, represent and analyse data.

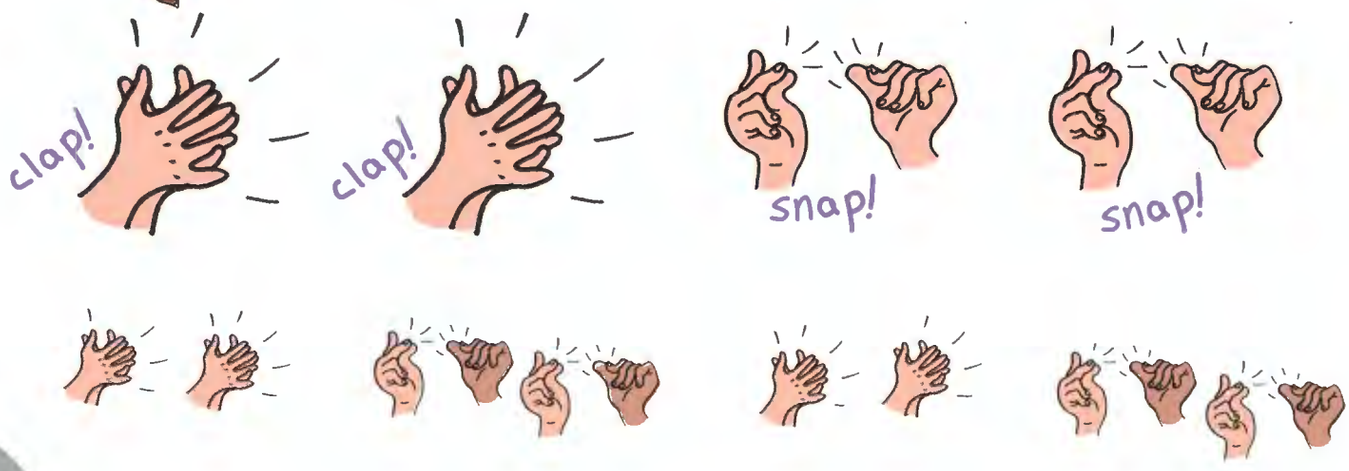
14. Fun with Patterns

Z5I2N4

Clap and Snap

Today we will follow each other. I will do something. Then you will repeat till I say stop. Then one of you will lead and do something and we will repeat.

Now your turn.



Let us say A for clapping hands
and B for snapping fingers.
Then 1 clap and 1 snap becomes...

AB–AB–AB....

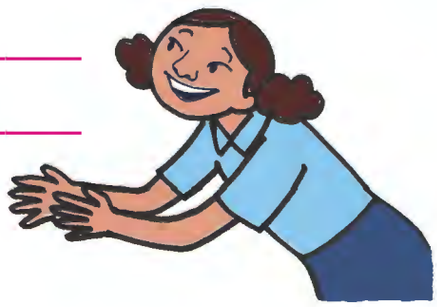
2 claps and 2 snaps become?

That is clap–clap–snap–snap,
clap–clap–snap–snap...

3 claps and 3 snaps become?

_____

_____



3 claps 1 snap?

clap–clap–clap–snap,
clap–clap–clap–snap...

So what should you do for
BA–BA–BA...

snap–clap, snap–clap,
snap–clap...

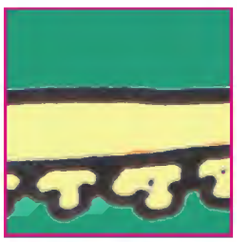
BBA BBA ...?

What should you do for
AAB AAB...?

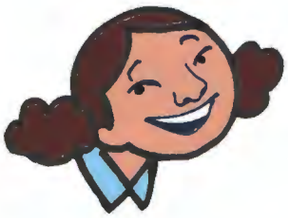
Teacher's Note: Variety of repeated patterns can be created using action and represented with letters. Different actions can be included like skip, hop, nod your head with or instead of claps and snaps.

Treasure Hunt

1. Find the following patterns in the above picture







Hello! I am Anusha. I live in Makha. My mother made rangoli during Diwali festival. Have a look at some of the designs made by my mother.

She also makes designs by using blocks.

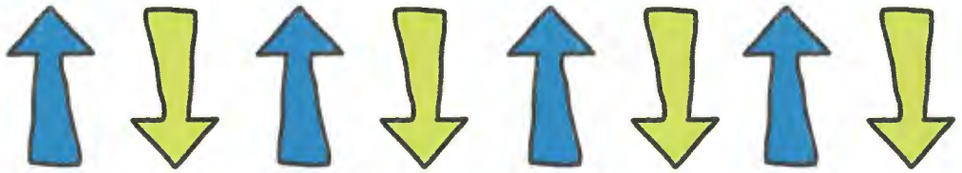
One day I got hold of the blocks and made a design.

You will see that these designs have been made by using the same block in different ways.

Pictures in a Pattern

Look at the patterns I have made. Each pattern has a rule. Guess the rule I have used.

The rule for this pattern is: There is one flower after every 2 leaves. Then this is repeated.



In this pattern there is one arrow up and one down. Then this is repeated.

Practice Time

A. Given below are some patterns.
Figure out the rule for each and continue the pattern.

1.

Rule: _____

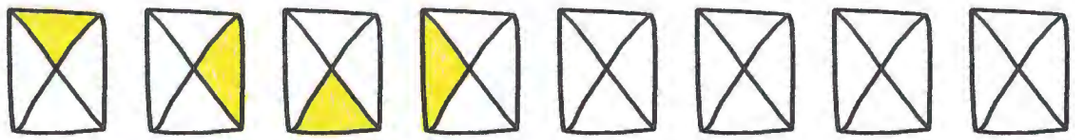
2.

A	B	A	A	B	A			

Rule: _____

3. morning afternoon evening night morning _____ _____

Rule: _____

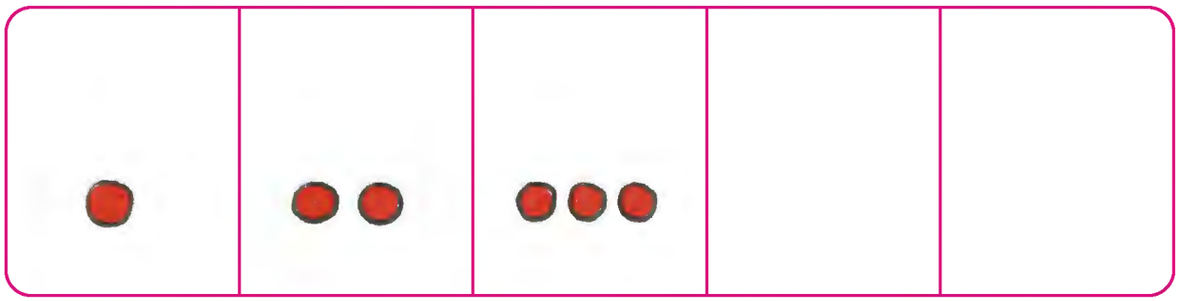
4. 

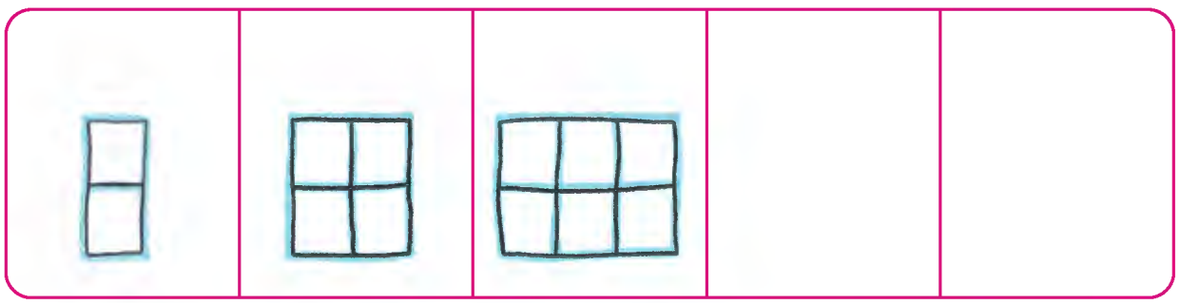
Rule: _____

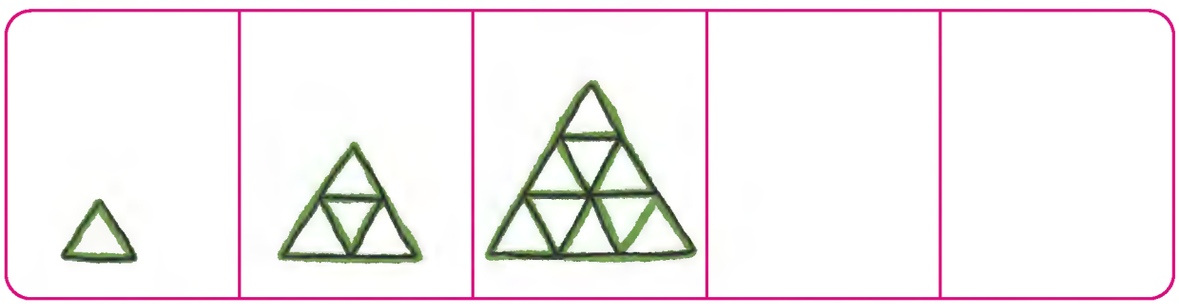
5. 

Rule: _____

B. What comes next?

1. 

2. 

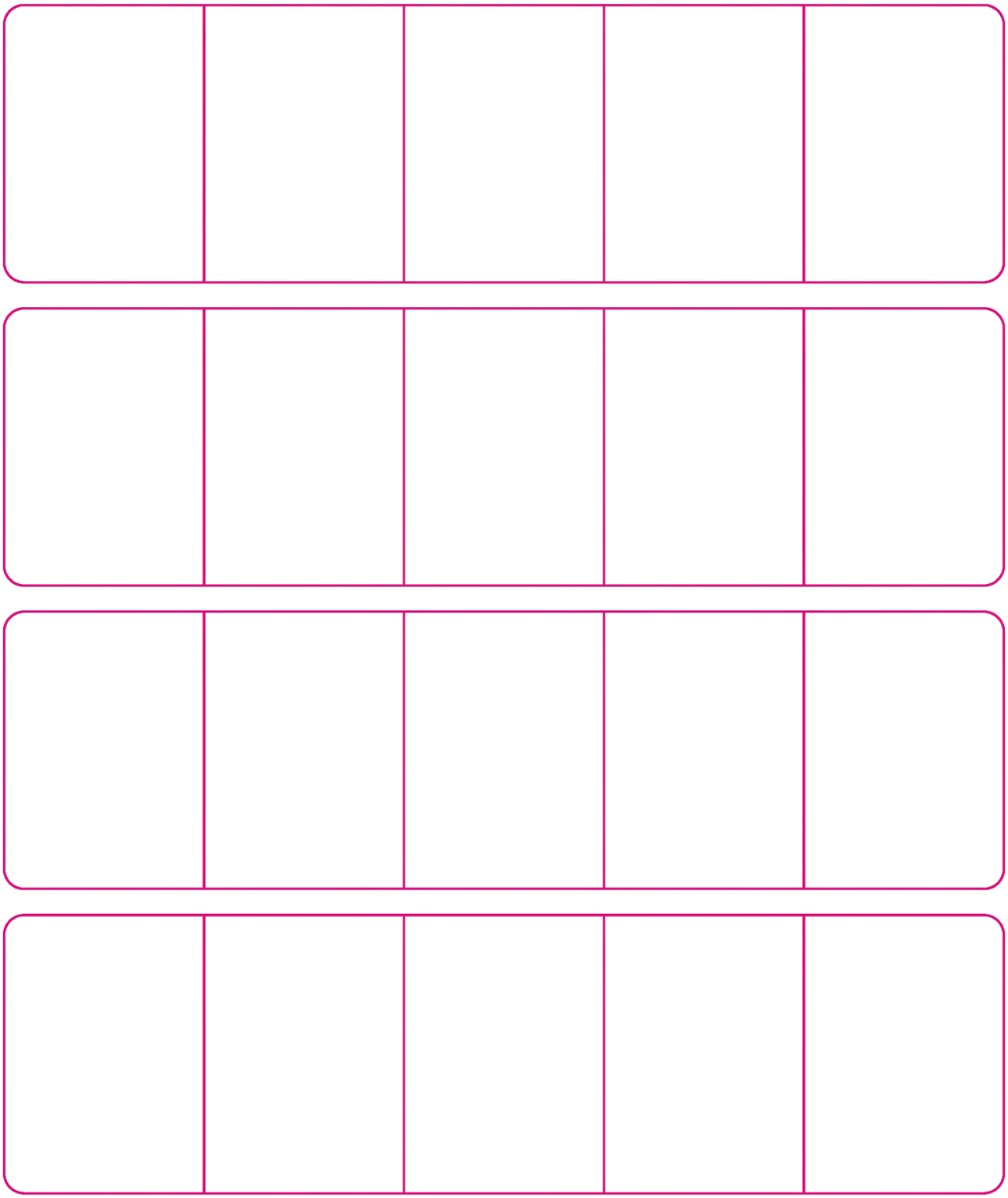
3. 

4. How are these patterns different from the previous ones in A?

Teacher's Note: Encourage children to make such patterns using match sticks, seeds/counters. It is a good idea to ask them to record how many sticks, seeds/counters are needed in each step.

My own patterns

C. Here is your space to make your own patterns:



D. Ask your friends to continue the patterns made by you.

Number Patterns

We have made some patterns with pictures.
We can make patterns with numbers too. Like:

11, 22, 33, 44, 55, _____

Guess the next number.

This is a growing pattern. It can go on and on.

11, 22, 33, 44, 55, _____ 77, _____ 99, _____ 121 ...

1. **Look for the rules and continue these growing patterns:**

a. 6, _____ , 18, 24, 30, _____ ,_____ ,_____ , ...

b. 21, 25, 29, 33, _____ ,_____ ,_____ ,_____ , ...

c. 3, 6, 12, 24, _____ ,_____ ,_____ ,_____ ,

d. 5A, 6B, 7C, _____ ,_____ ,_____ ,

2. **Look at these growing patterns.**
Find out what to add to each number to get the next one:

a. 1, 3, 6, 10, _____ ,_____ ,_____ ,_____

b. 0, 3, 7, 12, 18, _____ ,_____ ,_____ ,_____

c. 2, 3, 5, 8, 12, _____ ,_____ ,_____ ,_____ ,_____

d. 2, 3, 6, 11, 18, _____ ,_____ ,_____ ,_____

Even and Odd Number Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	41	15	16	17	18	19	20
21	22	23	42	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Half these numbers are in yellow.

What patterns do you see in these numbers?

Continue the same pattern and fill in the blanks:

96, 98, _____, 102, _____,_____,_____,_____,_____,_____,_____,_____,

How far can you continue this pattern?

These numbers have special name. They are called even numbers. All numbers that end with

◯ , ◯ , ◯ , ◯ , ◯ are even numbers.

Look at the pattern of numbers in blue.
Continue the same pattern and fill in the blanks:

99, 101, _____, 105, _____, 109, _____,_____,_____, 117

What do the numbers in blue end with?

All numbers that end with

 are odd numbers.

1. Write all odd numbers between 300 and 310.

_____

2. Write all the even numbers between 125 and 135.

_____

3. If we add 1 to any odd number we get an

_____ (even/ odd) number.

4. If we add 1 to any even number we get an

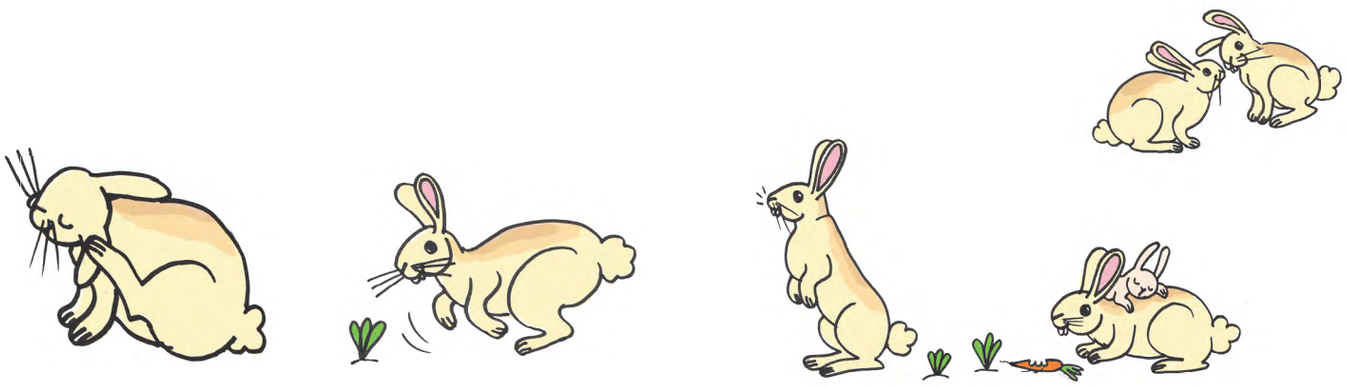
_____ (even/ odd) number.

Growing Fast

There was a small forest near a village. There were no tigers, wolves, foxes or any other big animals.

One day someone brought a pair of rabbits to that village. But somehow they escaped into that forest. Soon their numbers started growing.

2010	2011	2012	2013	2014	2015
2	4	8	16		



1. How many rabbits were there in 2014? In 2015?

2. The forest was small. Soon the grass and the small bushes started to vanish.

   Why do you think that was happening?

3. A village elder said that the forest has food for only 100 rabbits.

   a. When do you think number of rabbits will be more than 100?

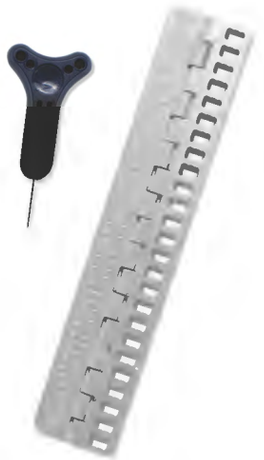
   b. What do you think will happen when there are more than 100 rabbits?

Writing with Dots and Reading with Fingers

Gyaltsen read about Hellen Keller and got very interested in learning how to write in Braille. Find out about Hellen Keller.

Good To Know

Louis Braille lost his eye-sight as a child and later developed a way to write using dots.
The dots are made on paper by pushing it with a blunt stylus. Then the paper is turned. The dots appear as little domes and can be felt by finger tips. People, who cannot see, can read Braille with their fingers and can write using a stylus. Now we have Braille printers and computers can print in Braille too.



These are the alphabets in Braille:

●○ ○○ ○○	●○ ●○ ○○	●● ○○ ○○	●● ○● ○○	●○ ○● ○○	●● ●○ ○○	●● ●● ○○	●○ ●● ○○	○● ●○ ○○	○● ●● ○○
a	B	C	D	e	F	G	H	I	J
●○ ○○ ●○	●○ ●○ ●○	●● ○○ ●○	●● ○● ●○	●○ ○● ●○	●● ●○ ●○	●● ●● ●○	●○ ●● ●○	○● ●○ ●○	○● ●● ●○
K	l	M	N	O	P	Q	R	S	T
●○ ○○ ●●	●○ ●○ ●●	●● ○○ ●●	●● ○● ●●	●○ ○● ●●					○● ●● ○●
U	V	X	y	Z					W

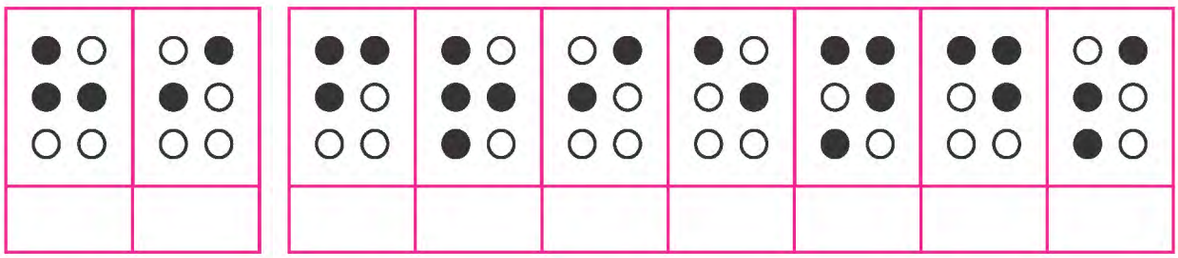
1. Can you see any pattern in the Braille letters?

2. What is same between f and p? Between h and r?

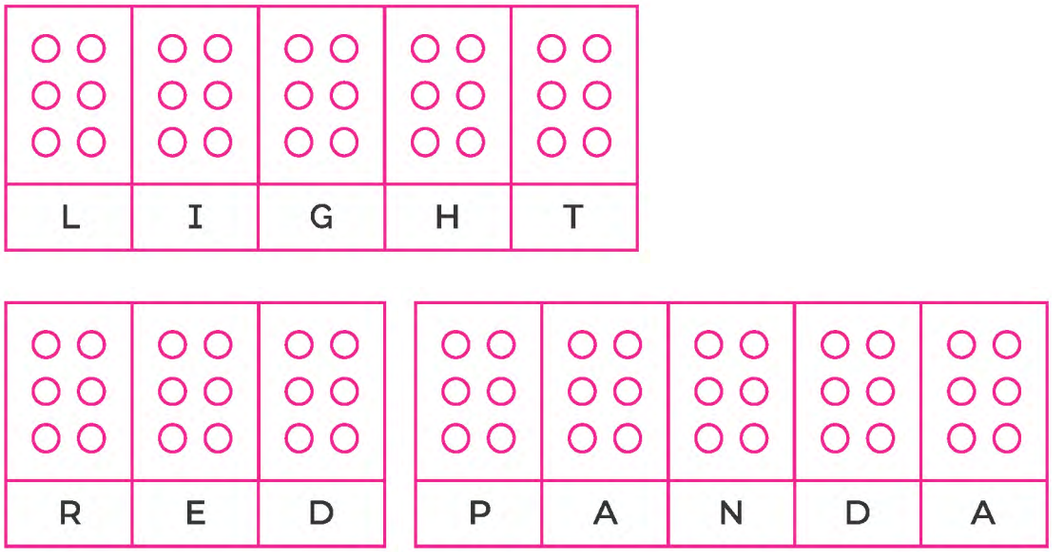
3. What is same among a, k and u? Among c, m and x? Among d, n and y?

4. Which letter is not fitting the pattern?

5. What has Gyaltsen written in Braille:



6. Can you write these in Braille?



Make your own words in Braille.

15. The Vegetable Seller

P9L8F5

This is a true story of Chandrakumari (popularly known as Debu). She is a local vegetable (basti ko sag sabji) seller. She lives in a beautiful village Namcheypong, Sikkim. She sells vegetables at different markets of Sikkim.

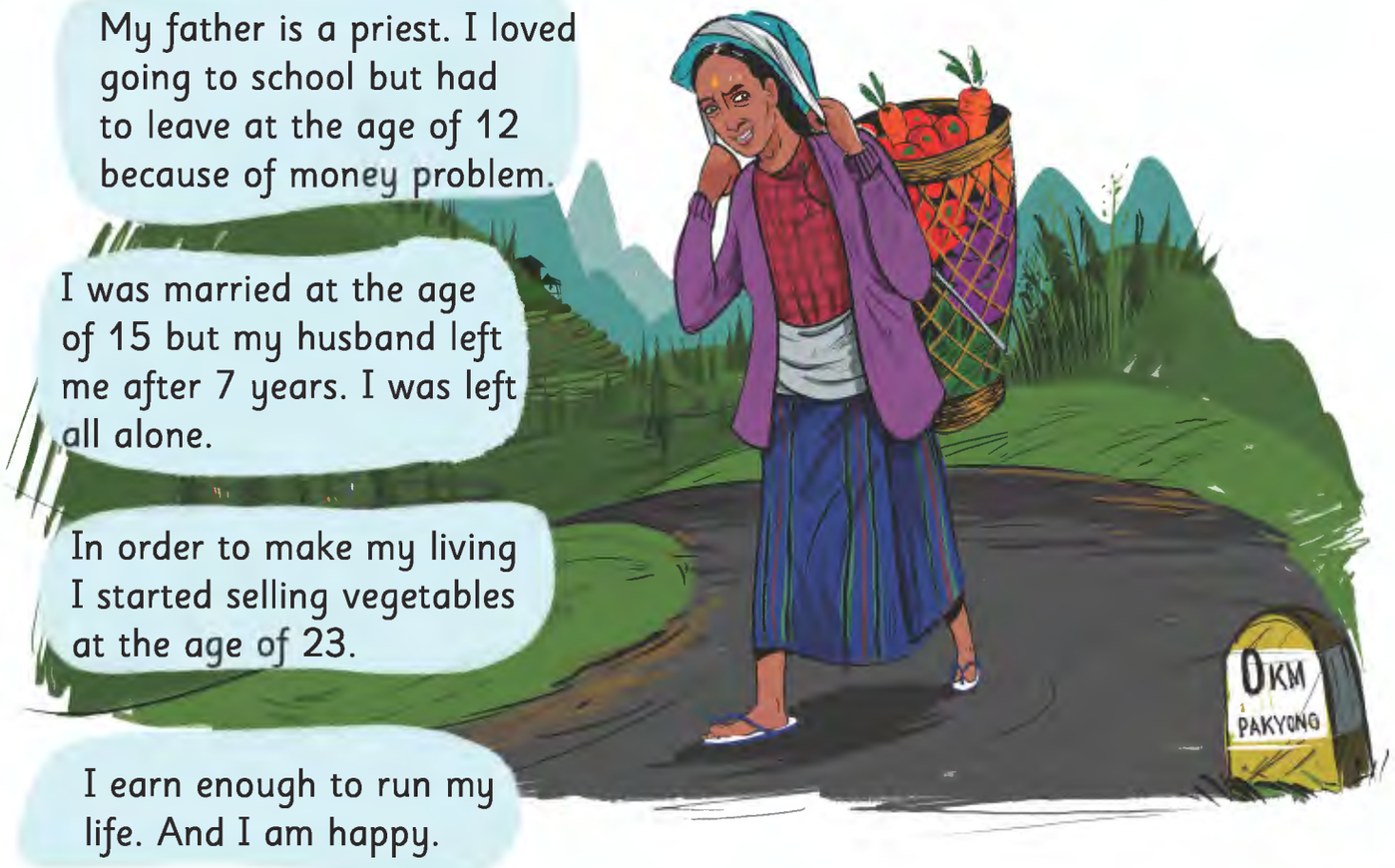
1. Do you know any local vegetable seller?

My father is a priest. I loved going to school but had to leave at the age of 12 because of money problem.

I was married at the age of 15 but my husband left me after 7 years. I was left all alone.

In order to make my living I started selling vegetables at the age of 23.

I earn enough to run my life. And I am happy.



2. How old was Debu when her husband left her?

3. After how many years of dropping from school did Debu marry?

One day, Debu earned this much money by selling vegetables.

1. How much did she collect that day?

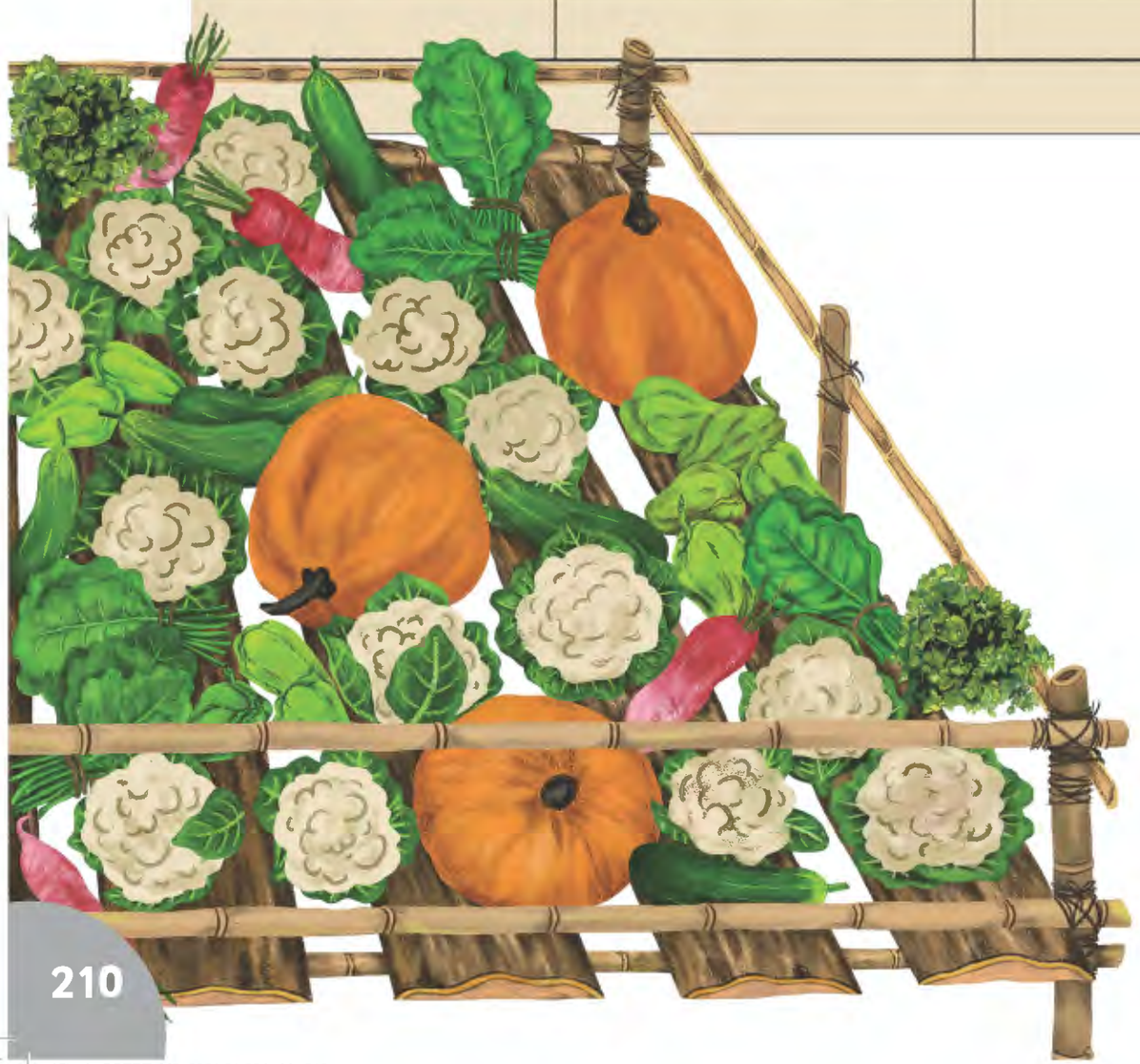
2. How much did she collect in currency notes only?

3. Make the same amount by taking different notes and coins.

Look at the pictures of different types of vegetables in Debu's shop.

1. Write the name of different vegetables as shown in the below pictures and their count in pieces or bundles in the table given below.

Vegetables	Tally Marks	How many
Cauliflower	𝍸 𝍸 ||||	14 pieces
Rayo Saag	𝍸	5 bundles



a. How many bundles of Rayo saag are there in Debu's shop?

b. _____ is most in number (in pieces). How many?

c. _____ is most in number (in bundles). How many?

d. _____ is least in number (in pieces). How many?

e. _____ is least in number (in bundles). How many?

Teacher's Note: Teacher may guide the children while doing tally mark.

2. Talk to people around you about their favourite vegetables and record below.

	Vegetables	Number of people

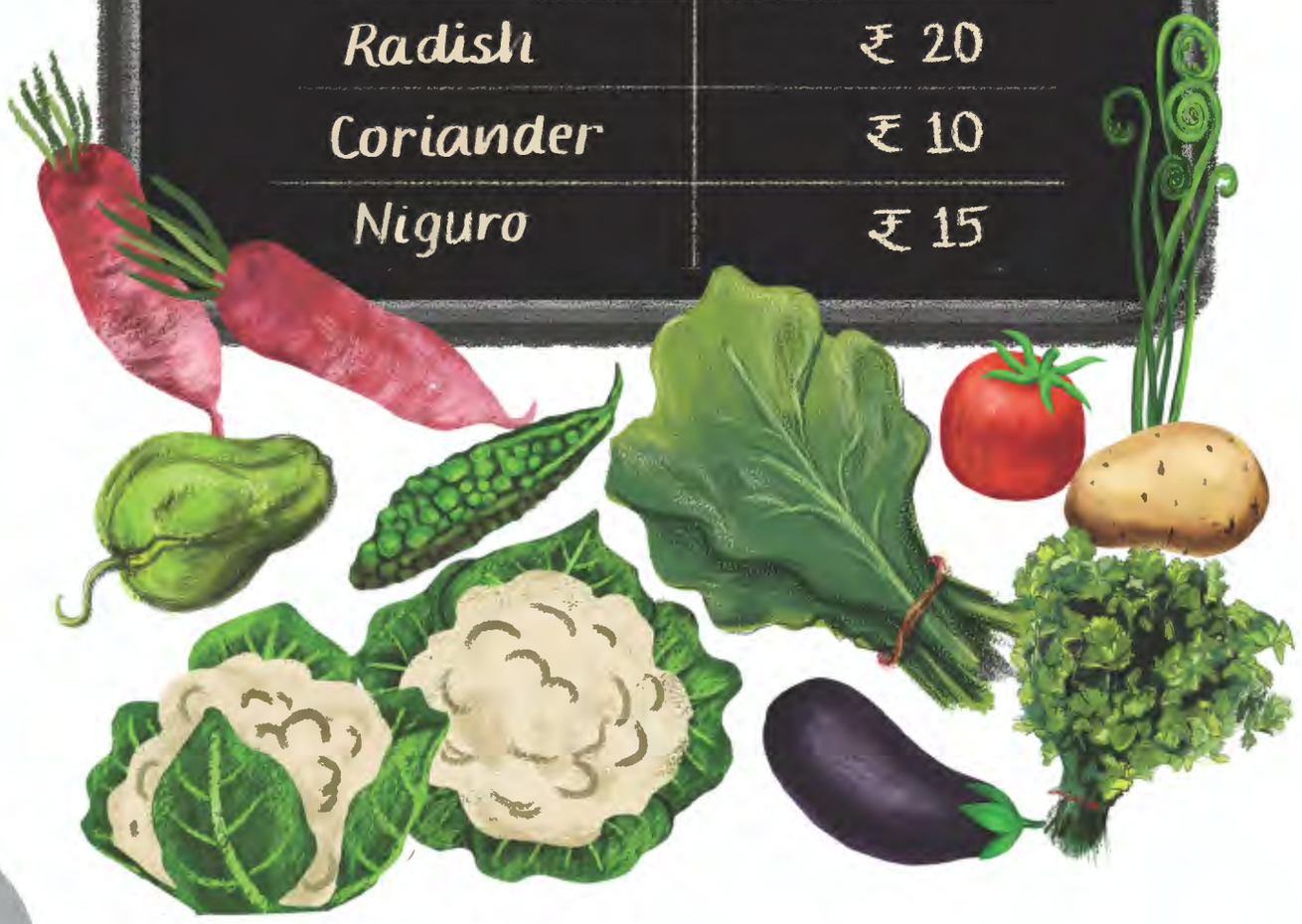
a. _____ is the most favourite vegetable.

b. The least favourite vegetable is _____ .

c. _____ is liked more than _____ .

3. Below is a rate list of vegetables in kg/bundle in a market in any of the day.

VEGETABLE	PRICE
Raayo Saag	₹ 15
Tomato	₹ 25
Iskus	₹ 20
Cauliflower	₹ 25
Brinjal	₹ 25
Karela	₹ 25
Potato	₹ 30
Radish	₹ 20
Coriander	₹ 10
Niguro	₹ 15



a. Debu sells 1 bitta niguro, 1 kg baigun and 1 bitta rayo saag. How much does Debu earn from this sale?

b. Find the total cost of following vegetables: 1 kg of iskus, 1 bitta of dhaniya patta, 1 kg of karela.

c. How much does Debu receive by selling 2 bitta niguro?

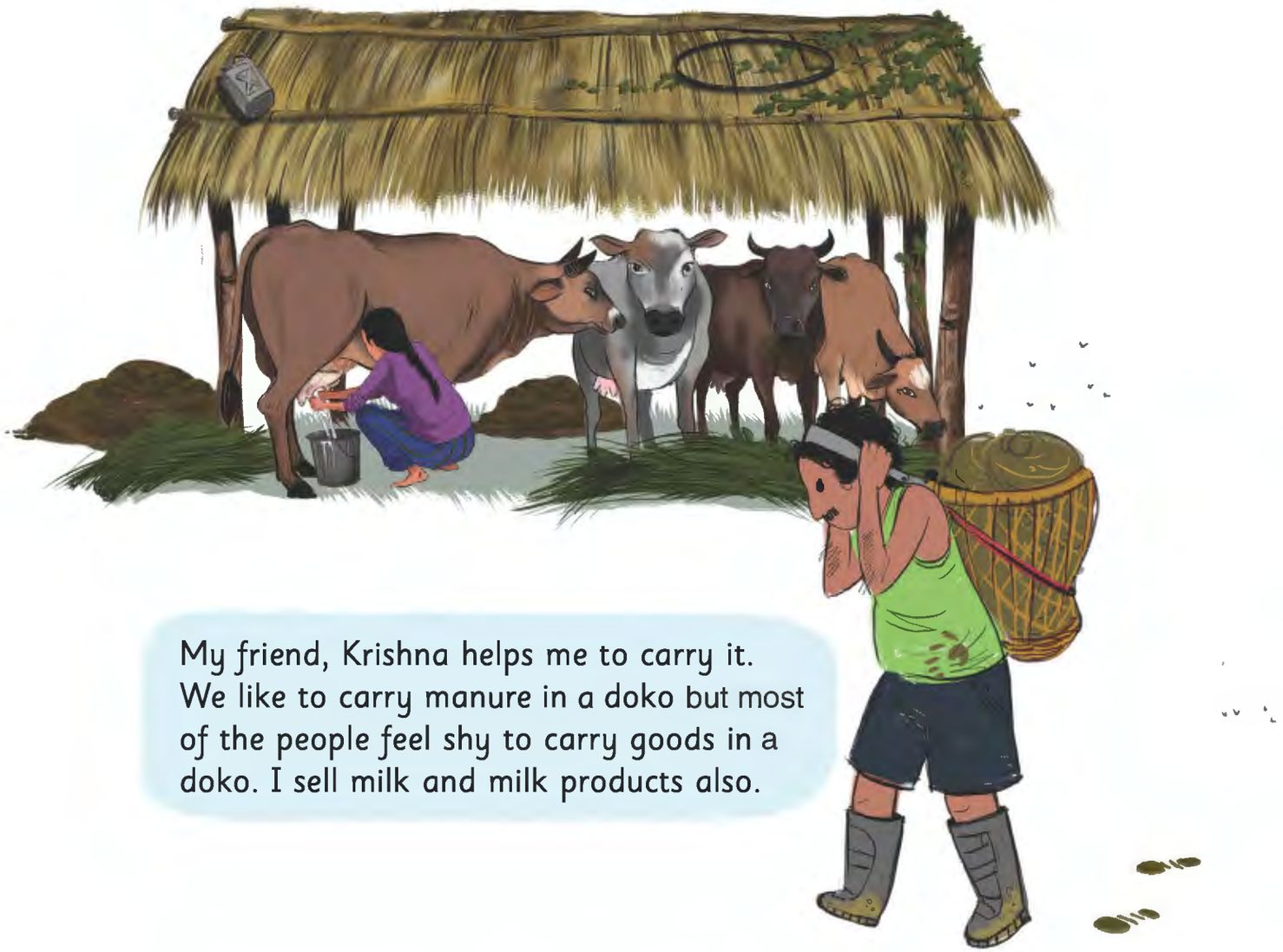
d. Lakpa purchased 2 bitta rayo saag, 1 kg brinjal and 1 kg potatoes from Debu's shop. He gave ₹ 100 note to her. How much did she return?

4. Find out the prices of different local vegetables in your surroundings.

Vegetables	Price for 1 kg or 1 bundle (bitta)

Teacher's Note: Please ask questions similar to the ones mentioned above. Ask children to go to a market and observe. Then ask them questions like: How many people were selling iskus? How many had niguro? etc.

Chemical fertilizers are harmful for soil and health, so I use cow dung manure for growing vegetable. I have my own cows. But sometimes I have to buy cow dung manure from my neighbors. I use a doko to carry it.



My friend, Krishna helps me to carry it. We like to carry manure in a doko but most of the people feel shy to carry goods in a doko. I sell milk and milk products also.

5. Debu bought 4 dokos of cow dung manure by paying ₹50 for 1 doko. Help Debu to pay the money of cow dung manure she purchased.

For 4 dokos of cow dung manure how much does she has to pay?

₹50 + _____ + _____ + _____ = ₹ _____

Think of some other way to do it.

Remember Debu used to sell milk and milk product also.

6. Meet the people around you and find out the milk products they use and their prices.

MILK PRODUCTS	PRICE
Curd	₹80/kg
Paneer	

a. _____ is more costly.

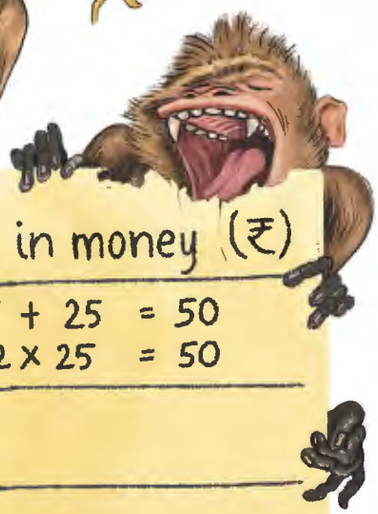
b. _____ is the cheapest.

c. Price of _____ is more than _____ .

d. Price of _____ is less than _____ .

e. Compare the table with your friends.

I still remember that once several monkeys entered my vegetable field and smashed many vegetables.



Vegetables	Loss in kg	Rate for 1 kg	Loss in money (₹)
Brinjal	2 kg	₹ 25	25 + 25 = 50 2 × 25 = 50
Cabbage	3 kg	₹ 20	
Cauliflower	5 kg	₹ 22	
Cucumber	4 kg	₹ 17	
Carrot	3 kg	₹ 24	

7. Above is the record of list of vegetables smashed and rates during that period:

How much money did she lose during that period?

Debu has many trees in her field. She plants 30 saplings in her field every year during World Environment Day. She grows trees for timber and gives them to society for different purposes. She plants 5 saplings for each tree she cuts.

8. Below is the rate list of different type of saplings purchased by Debu from forest nursery for planting in her field during World Environment Day.

TYPES OF SAPLINGS	NUMBER OF SAPLINGS	RATE FOR ONE SAPLING	MONEY PAID (₹)
Chap (magnolia)	5	₹12	12 X 5 = 60
Dhupi (pine)	6	₹10	10 X 6 =
Orange	4	₹8	
Uttis	8	₹3	
Panisaj.	12	₹7	

a. Total number of saplings purchased by Debu is _____

b. Can you do this without writing?

c. How much money she has to pay to nursery?

Debu is a member of Self-Help Group.

We have a Self Help Group of 10 members. We help each other and work in a group. Every month we collect ₹100 from each member and deposit the total amount in bank. We use that money in need.

We also plant trees and clean our village, our school and our panchayat ghar.

9. How much money Debu has to pay to Self-Help Group for different periods as in the table given below?

MONEY PAID	HOW MUCH?
In one month	₹ 100
In 2 months	
In 3 months	
In 4 months	
In 1 year	

a. Money collected by group in 1 month is _____.

10. Debu have different notes and coins in her bag as shown below:

a. Help Debu to pay ₹ 100 to Self-Help Group ₹ 50 + ₹ 50 = ₹ 100

₹ 50 + ₹ 20 + _____ + _____ = ₹ 100

b. Try making ₹ 100 by using other notes and coins.

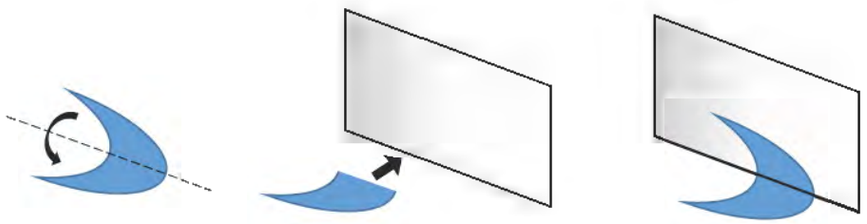
Teachers' Page

• SYMMETRY •

Symmetry is a geometric aspect of shapes (2D and 3D) and is used extensively in art and designing. Mirror symmetry or line symmetry (for 2D) is the most fundamental one.

The first step is to separate out 2D shapes that does have line symmetry from those that don't. As part of this, children should be asked to first check if a given line is a line of symmetry. It is important to distinguish here that a line of symmetry must halve the shape in two equal parts AND they have to be mirror halves. This is where folding is crucial. If a shape is folded along a halving line AND the two halves overlap completely, then they are mirror halves. E.g. a diagonal of a parallelogram splits it in two equal halves but when the parallelogram is folded along a diagonal the two halves don't overlap completely. So, they are not mirror halves.

To connect mirror half to folding, the teacher can bring a mirror to the classroom. Take any shape with line symmetry – cut out on a paper is best – and fold it along the line of symmetry. Now place the folded shape next to the mirror so that the folded edge touches the mirror. Does the folded shape combined with its image form the unfolded shape? Unfold and cross check.



It is good to get various picture and cut outs – upper case letter (A, B, C ...) and digits (0, 1 ... 9) in particular – and allow children to fold them to explore their symmetry. Various 2D shapes like triangles, quadrilaterals and other polygons as well as shapes that may not have a geometric name (e.g. ⊠, ⊠, ⊠, ⊠) are good. At the same time, discuss shapes and their names and use this as an opportunity to revise 2D geometrical shapes.

Fold and cut is a good activity to understand how folds are lines of symmetry. Ask children to fold any paper and make some cuts at any of edges. Then ask them to open and see the resulting shape. Is it symmetric? Where is the line of symmetry? Ink-blot is a similar and popular activity.

Once children grasp the concept of mirror halves and are able to draw the line of symmetry without folding, give them half a picture and the line of symmetry and ask them to draw the remaining half. This can be done easily on both kinds of dot sheets. This practice will help children understand the basics of reflection which can be studied more rigorously later.

Symmetry is important in nature. A bird cannot fly if it is not balanced. Children

should be taken outside to observe symmetry in natural objects (animals, plants) and human constructions. Ask them why the symmetry is important in the things they observe.

☞ The teacher can refer to http://teachersofindia.org/en/article/pullout-section-march-2015-geometry-ii some such activities.

• TILING AND MAP •

Tiling is a deeply fascinating area of mathematics. It has interested not only mathematicians, but also artists and architects. Even today tiling is an active area of research in modern mathematics.

Tiling means covering a 2D surface without gaps and without overlaps. The chapter includes one example to distinguish (i) overlap and no gap, (ii) gaps but no overlap and (iii) tiling. The teacher can provide more such examples to help children understand the concept of tiling.

Tiling is fundamental for understanding area (and length and volume). While measuring an area (or a length or volume), the basic idea is to tile it with the unit and count how many units covered it. So if one needs to measure the area of a book in square centimeter, one has to tile the book with 1cm × 1cm squares. If 300 such squares tile and cover the book, then the book has an area 300 sq.cm. Similarly, it can be seen in measuring length and volume.

Tiling also involves various geometrical aspects including which shapes can tile on their own and which shapes cannot. Some shapes cannot tile on their own, but can tile with other shapes. At this level children can experiment and observe which shapes can tile on their own, which two shapes can tile together etc.

In this chapter tiling is explored through activities and local cultural practices existing all over Sikkim.

Identifying tiles: The teacher can ask children to identify different tiling designs in school and locality. Like rangoli and sarvatobhadra as mentioned in the chapter, the teacher can identify different traditional tiling designs and help children to make them in the class. In particular, the teacher can show them a football or volleyball and ask how many (bigger, smaller) tiles are there. Children should be able to say that the black tiles in the football have 5 edges and the white ones have 6 edges each. This would also give them an idea that curved surfaces can be tiled also.

Making tiles: Tiles can be made in different colours from any card like material – cardboard will be better. Square and rectangular tiles are the easiest. With the help of isometric dot sheets (or using the compass), teachers can also make equilateral triangles and regular hexagons. With the help of square grid, teachers can also make parallelogram tiles and right-angle triangle tiles.

Children can take part in making tiles as well. To optimize time and effort, first get children to design tiles on rectangular dot sheets so that the designed tiles cover the entire dot sheet. Then take any cardboard (the boxes of A4 sheets are very

good) and create a rectangular grid on it with scale. Then draw the tiles designed on the dot sheet on the cardboard using the grid. This should cover the entire cardboard. The children may colour the tiles before cutting. All of these can be done by the children with the help of the teacher. The teacher can then cut the tiles with cutter and scale.

This way both the cardboard and effort can be optimized and children will understand tiling even better since there will be no leftover cardboard (except for the sides) i.e. no gaps and of course there will be no overlap.

Different views

This section starts with the view of same or different objects from different positions: (1) side view, (2) top view and (3) front view. The same thing may look quite different from a different angle. Later the top-view aspect will be utilized to understand map.

The teacher can do the following:

1. Take pictures of various objects from unusual angles, e.g. a saucepan from top, a shoe from the front, a light bulb from the bottom, a kettle from the front so that the snout is exactly in the middle etc. Show these pictures to children and ask them to identify them. Then ask them how the picture was taken i.e. how the object was placed before the camera. They can be asked to sort the pictures in to top view, side view and possible front view.
2. Next collect some objects like vessels with handles etc. and ask one group of children to draw their top views and another group to draw their side views. Then ask the groups to get together and match the top views with the side views.
3. The teacher can make a field trip with children around school campus and ask them to see things from different position (side view and top view) and to draw the top view and side view sketch of the same things. In particular, the teacher can ask children to view school building and other buildings from different positions – from front and side and also from the top (possible in hilly area). This can be expanded if possible, to drawing aerial view of a village as seen from a hill.

These top views of objects and in particular aerial view of a village or an area can help children understand maps, which are essential for modern life. In particular, it will help children understand how things look much smaller from a distance and from top. The drawings can be used as the first maps to discuss 'What is next to the river?' or 'What is to the right of the red building?'.

Maps help us navigate in unknown places. Most public places like zoos, historical places, big markets etc. – any large campus usually has a map which can help a visitor locate himself/herself and go to various locations within. Maps also help us understand how land is distributed amongst people and the relationships among water bodies, agricultural land, forest, and cities. Understanding direction (left, right, forward, backward) is deeply connected to understanding maps.

In this chapter, aerial view and unscaled maps of Saramsa Mela and Deorali Bazaar

has been introduced to develop understanding of basic concepts required for viewing maps like

1. **Direction:** left-right and front-back and how the front-back becomes top-bottom if the map is lifted from the floor and put on a wall
2. **Locating places in the map:** this can also include finding places/things w.r.t. a given location, e.g. the tree is on the left of the building, the road is in front of the school etc.
3. **Near places and far places** e.g. the road is nearer to the building but the field is farther away.

Teacher can use the following activities and other situations to help children understand maps:

1. Show picture of aerial view of local familiar places (e.g. village or market) and ask children to describe the position of a specific landmark from other landmarks or locations on the map.
2. Challenge children to work in small groups to create simple maps showing the location of the rooms in the school. Give two copies of the same map to two children and make them sit far apart so that they cannot see each other's maps. Then ask one child to guide the other to come from a specific room to another. The second child should trace the journey from the beginning to end with a pencil on the map.

☞ The teacher can refer to http://teachersofindia.org/en/article/pullout-section-march-2015-geometry-ii for some activities related to tiling and mapping.

• MULTIPLICATION AND DIVISION •

Multiplication is introduced as repeated addition. So the chapter has a number of activities that cater to this concept through repeated addition.

Multiplication table is given in a reverse way unlike it used to be previously.

For example, previously we learnt table of 3 as

3 × 1 =	3
3 × 2 =	6
3 × 3 =	9
3 × 4 =	12

But now it is mentioned as

1 × 3 =	3
2 × 3 =	6
3 × 3 =	9
4 × 3 =	12

And it is read as 1 time 3 is 3
2 times 3 are 6
3 times 3 are 9 and so on.

The chapter has multiplication table for 2, 3, 4, 5, 6 and 10. It also has the construction of multiplication table for 6, 7, 8 and 9 using tables of 1, 2, 4, 5 and 10.

Along with the construction of multiplication tables the idea of commutative, associative and distributive properties of multiplication are also brought in with the help of grids and arrays. Please help the children get the idea of these properties with out exactly naming them.

There are five contexts where multiplication can be used:

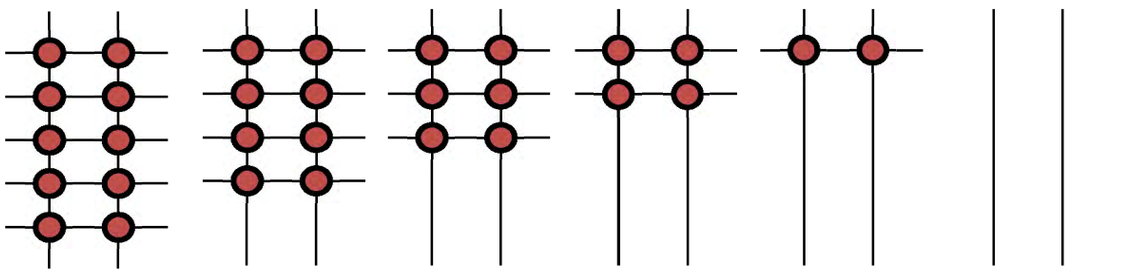
1. Equal grouping – e.g. 4 baskets with 3 fruits in each
2. Array – e.g. 7 rows of trees with 4 tree in each row
3. Rate – e.g. if one read 7 pages everyday how many pages are read in 2 days
4. Scale factor – e.g. I am 6 years old and my mother's age is 5 times my age. How old is my mother?
5. Cartesian product – e.g. if one has 3 tops and 4 skirts, in how many way can she pair them?

In the chapter, we have used equal grouping and array to create multiplication tables and explore the properties of multiplication. The word problems include equal grouping, rate and scale factor contexts. It will be good if the teacher can provide more examples of Cartesian product.

Multiplication of any number by zero

How does one explain to a child that $n \times 1 = n$ and $n \times 0 = 0$? Providing a convincing explanation is not easy. If one gives repetition as an explanation, then one will be forced to say 2 occurring twice becomes four ($2 \times 2 = 4$) and two occurring once is two ($1 \times 2 = 2$). How about zero times 2? One way is to use a flow technique in the reverse direction, by using sticks and counting the joints. We start with 5×2, shown using sticks, and progressively remove one stick at a time, counting the joints each time:

5 × 2 (10 joints) 4 × 2 (8 joints) 3 × 2 (6 joints) 2 × 2 (4 joints) 1 × 2 (2 joints) 0 × 2 (0 joints)



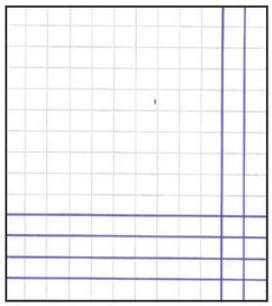
It is important that we provide consistent explanations which follow patterns and are logical.

Lattice multiplication is also introduced in the chapter where two numbers needed to be multiplied are first split into tens and ones and then multiplied. This is done with flats or hundreds (10×10 grid), longs or tens (10×1 grid) and units or ones (1×1 grid).

To make Flats, Longs and Units (FLU), paste sheets of square grid notebooks on any card type material and cut of 10×10 squares from one corner. Then cut of longs i.e. 10×1 rectangles from the remaining L shape. Finally cut the remaining

part into Units.

Note that the diagram actually represents 12 × 14. Flats-Longs-Units (FLU) are very useful for understanding any algorithm.



So, teacher may encourage children to practice constructing multiplication table for other numbers using two different numbers and also encourage them to practice multiplication of numbers using lattice multiplication.

Teacher may also note that the chapter does not feature standard multiplication algorithm at Class 3 level which would probably come at Class 4.

Division is basically sharing in equal numbers. So the chapter began with the activity of sharing things among children. There are two contexts where division gets used at primary level:

1. Equal sharing: where a given number of objects are shared equally among a given number of groups and how many per group is unknown, e.g. 12 pears equally shared by 4 children, how many does each child get?
2. Equal grouping: where a given number of objects are grouped in equal numbers and number of groups are unknown, e.g. 12 pears are distributed to some children so that each gets 3 fruits, to how many children can these be given?

Division is also a repeated subtraction of the same number. Therefore, the author has incorporated an example of 'children sitting inside different cabins of Rotaping (Giant wheel)' one after another which is a repeated subtraction.

Teacher may design few activities where division as a repeated subtraction is worked out.

At the same time, it is important to connect division with multiplication. In particular, it should be highlighted how every multiplication fact can be expressed as two division facts, e.g. 5 × 7 = 35, 35 ÷ 5 = 7 and 35 ÷ 7 = 5. This understanding is important to tackle word problems.

It is not necessary to introduce all the words – divisor, dividend, quotient and remainder – at the lower classes. Instead, we can refer to these numbers as: how many objects need to be distributed? To how many people? How many will each get?

The chapter has also tried to find mathematics being used by a tailor or by a mason. Similarly, the chapter has also tried to highlight some of our local foods and finding mathematics there.

Therefore, teacher may encourage children to explore other professions and day to day practices where mathematics is used by people.

Division of zero by a non-zero number

0 ÷ 6 = ?

This can be initiated with a situation: If 24 chalks are divided among 6 children how much will each get? So if 0 chalk gets divided among 6 children how many will each

get? An empty chalk box can be used for this.

While teaching multiplication facts through the flow technique, we had established that any number multiplied by 0 yields 0. This can be used here if we write this as multiplication: 6 × _____ = 0 and then the answer is obvious.

Division of a non-zero num ber by zero

14 ÷ 0 = ?

This is best explained through repeated subtraction. Ask the question 'How many times can zero be subtracted from 14 to get zero at the end?'

14 − 0 = 14, 14 − 0 = 14, 14 − 0 = 14 so forth and so on.

No matter how many times we subtract zero from 14, we will never get a zero as the answer. It goes on indefinitely. So the division cannot be done at all.

Division of zero by a non-zero number and division of a non-zero number by zero are very different.

Consider, 14 ÷ 0 = _____

We can write this as a multiplication: 0 × _____ = 14

No number can satisfy above equation. So, the division of such type is not possible.

Division of zero by zero

Consider, 0 ÷ 0 = _____

We can write this as a multiplication: 0 × _____ = 0

This equation can be satisfied by any number that we know. We cannot choose a single number to come to the answer. Hence, it is indeterminate form.

So division of a non-zero number by zero and division zero by zero are also very different. Both are impossible. But for completely opposite reasons.

Lastly, teacher may also note that the chapter does not have division algorithm at Class III level. So it is advised not to take up algorithm at this stage which would probably come at Class IV.

☞ The teacher can refer to http://teachersofindia.org/en/article/pullout-section-march-2014-teaching-multiplication and http://www.teachersofindia.org/en/article/pullout-section-july-2014-division for further details including pedagogical concerns, appropriate activities and games.

• THEME - VEGETABLE SELLER •

There are two types of chapters in this book – (1) theme based chapter and (2) concept based chapters. The latter ones are common in most mathematics textbooks. A concept chapter is organized around a concept and should develop the concept out of some well-chosen contexts. A theme chapter on the other hand takes a theme or a particular context and explores a lot of mathematics linked to it. The mathematics usually involves a range of concepts.

School mathematics has a lot of use in daily life and most (if not all) can be connected to the lives of children and their communities. Theme chapters make mathematics contextual and realistic to children. It helps children visualize mathematics in real life events and more importantly help them get a feel of how the subject is involved in the day-to-day activities of their community.

Mathematics by nature is abstract and thus difficult for children. Theme chapters help by exposing children to how this abstract subject comes from real life problems and how it gets utilized in such situations. It helps them to see possibilities where their mathematical knowledge and skills can be used for problem-solving. Theme chapters are especially important for education for sustainable development (ESD) because they situate mathematics in community activity and the environment.

In this book the theme is vegetable growing and selling. In particular, it can connect multiple concepts and skills to real life and encourage children to use mathematics in different situations. It can also provide examples of how mathematics helps in solving problems or tackle challenges. This theme chapter revisits various concepts from other chapters of this textbook.

The work of a vegetable seller is the theme in this book's theme chapter. It is based on a real story. It includes concepts like addition, subtraction, multiplication, data handling, money, weight and time. It shows the empowerment of women, dignity of labour and several values in ESD.

The teacher can enhance the experience of children by talking to a few people in the community and finding out about their lives, how they uses mathematics in their life and discuss the mathematics that is there in their life-stories. Encourage children to talk to various people and reflect on the choices these people made or the decisions they took based on their experiences. Children can be encouraged to collect data from their surroundings and use them to develop a deeper understanding of their world with the help of mathematics.

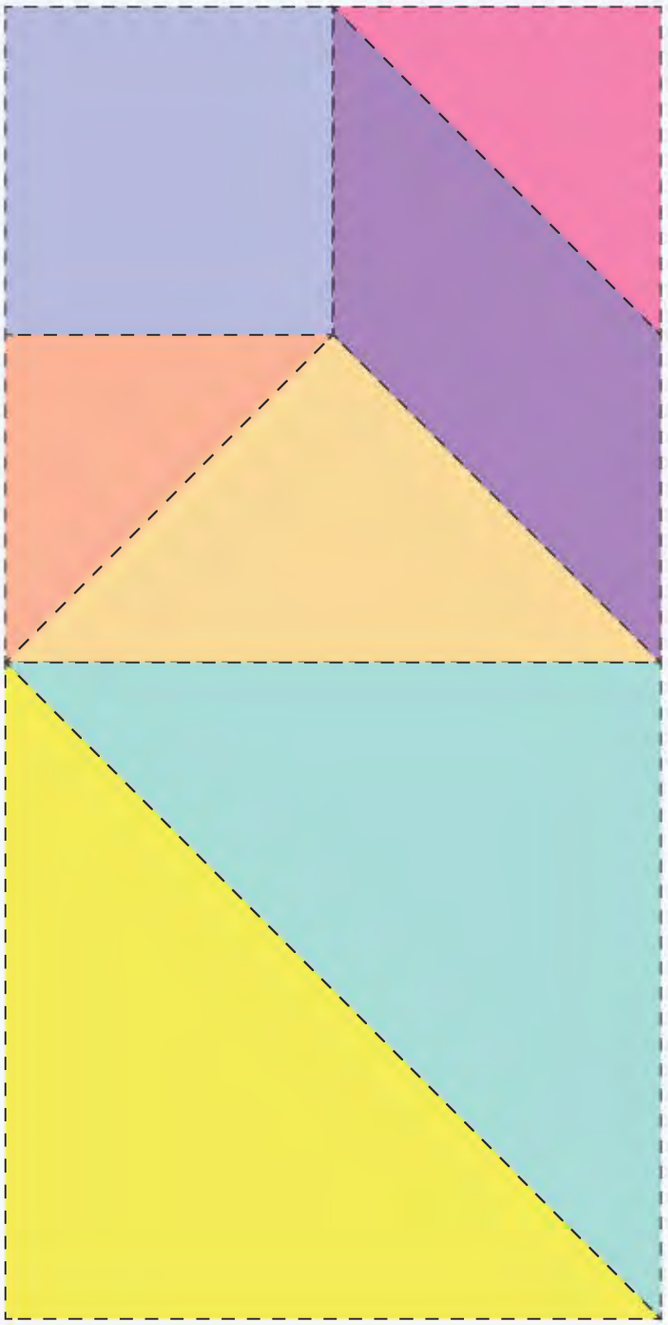
Suggestive themes:

1. Mathematics in various profession e.g. tailoring or shop-keeping
2. Mathematics in a market or at home or in the school
3. Mathematics in a festival or in a social occasion e.g. wedding

Tangram

Cut along the lines. Cut out each piece carefully.

7-piece tangram



5-piece tangram